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Clinical Lecture
ON
THE RIGHT SIDE OF THE HEART AND ITS RELATION TO OVERSTRAIN.

BY
WILLIAM RUSSELL, M.D., F.R.C.P.ED.,
PROFESSOR OF CLINICAL MEDICINE IN THE UNIVERSITY OF EDINBURGH, AND PHYSICIAN TO THE ROYAL INFIRMARY.

I ASK your attention to-day to the consideration of the clinical phenomena which, when correctly interpreted, enable us to arrive at certain conclusions as to the condition of the right side of the heart. At the outset we must recall the anatomical relations of the right heart. A frontal view of the heart is made up of right auricle and ventricle, and, at its left limit, of a strip of left ventricle about half an inch in breadth. The origin of the pulmonary artery, from that part of the right ventricle called the *conus arteriosus*, is in the second left intercostal space, while its position, when not thus situated, can often be precisely determined by palpation and auscultation, as these define the point at which the closure of the pulmonary cusps is best felt and heard. The right ventricle lies under the third, fourth, and fifth spaces, extending in the fifth space to within half an inch to an inch of the apex of the left ventricle. The right border of the heart forms an arc the convexity of which is to the right, and which lies in the third, fourth, and fifth intercostal spaces, extending in the fourth to an inch or one and a half inches from the right sternal border.

METHODS OF EXAMINATION.

Percussion.

The position of the left and right borders of the heart can be determined by percussion in the different intercostal spaces. The right border is the more difficult of the two to determine, but I have explained to you on previous occasions how it can be done, and I have warned you that a right border represented as a line along the sternum may be the border of the right lung, but cannot be the right border of the heart. The way you must look at this matter is, that the right border even of the normal heart is an inch or more beyond the sternum, and that you have to learn to find it. It is often considerably to the right of its normal limit.

Inspection.

Pulsation in the second left space is usually not due to the pulmonary artery, but to the conus arteriosus, and results from the fact that this part of the right ventricle dilates early, and that as it dilates it occupies the space carrying the origin of the pulmonary artery outwards and upwards, so that it may lie under the second rib, and be an inch or more to the left of the sternal border. Pulsation in the third, fourth, and fifth spaces, in the latter of these to within an inch of the apex, is always caused by the right ventricle, and all ideas based upon the phrase "diffuse apex beat" are erroneous. Such pulsation is a diffuse cardiac impulse, not a diffuse apex beat.

Auscultation.

In auscultating the heart the site of the apex of the left ventricle is auscultated, first, to determine the intensity of the first sound as produced by systole of the left ventricle; and, secondly, as the first step in determining whether a mitral lesion is or is not present. Having begun with the apex, and passing from it towards the sternum in the fifth, fourth, and third spaces, the loudness, faintness, or absence of the first sound is noted as an indication of the strength of the right ventricle. The old idea that the first sound as heard over the right ventricle was attributable to the left, as the thin-walled right ventricle was too weak to produce sound, has been more or less abandoned. The right ventricle is now credited with at least some part in the production of the first sound as heard over it. I, however, ask you to go further than that. I would advise you to look at this matter from a different standpoint—namely, that the first sound originating in the left ventricle and murmurs produced at the mitral orifice, as a rule and in the majority of cases, are not passed through the interventricular septum to the anterior wall of the right ventricle. The first sound as heard over the right ventricle is therefore *not* produced by the contraction of the left ventricle. As regards murmurs produced at the mitral orifice, I again impress upon you that, as a rule, these murmurs are not heard to the right of where the ventricular septum forms part of the anterior aspect of the heart. We have frequently in the wards cases—and there are two or more such cases there now—in which loud systolic mitral murmurs are not heard over the body of the right ventricle, while they are well heard outwards and upwards to the left of the apex. Such cases must be accepted as the standard by which we are to judge of the true area of limitation as well as the direction of propagation of mitral murmurs. You must abandon any erroneous views you may have learnt that mitral murmurs are commonly conducted over the whole precordia—conducted even to the base. The rule is that when a systolic mitral murmur is audible at the apex, and a murmur of the same time is heard to the right of the ventricular septum, this latter is a separate and superadded murmur, and is tricuspid in origin. In cases of marked incompetence the tricuspid murmur is often heard so high on the sternum that it may be thought to be aortic in origin. When the murmur thus raises the question of its seat of production, it will be found that on making the patient sit up in bed the murmur will disappear from the manubrium sterni if it is tricuspid in origin, and will reappear when the patient lies down. An aortic systolic murmur does not disappear and reappear with these changes in posture. The presence of a tricuspid murmur can thus, in the majority of cases, be readily determined. In judging of the right heart the power to determine with accuracy the presence or absence of this murmur is essential, as it gives important evidence as to the condition of the right heart.

Let me impress upon you the points I have endeavoured to expound to you. They are: (1) That pulsation in the second, third, fourth, and fifth spaces, half an inch or more within a vertical line drawn through the apex, is caused by the right ventricle; and (2) that you have to differentiate tricuspid from mitral murmur on the lines I have formulated for you.

ABNORMAL PHENOMENA.

Visible Pulsation of Right Ventricle.

From these elementary points, which it has been necessary to dwell upon owing to the prevalence of misconceptions, we pass to the consideration of their bearing on the investigation of the condition of the heart. In the dorsal decubitus and in normal conditions the pulsation of the right ventricle is not visible, save in persons with exceptionally small and thin chests. Visible pulsation means either that the right ventricle is dilated or that the left heart is dilated and has lifted the right ventricle into closer contact with the chest wall. With regard to the first of these explanations, I would warn you against a too facile belief in dilatation of the right ventricle; as a matter of fact, although various interesting changes occur in the right ventricle, dilatation such as is common in the left ventricle does not occur, for the simple reason that a very strong muscular band passes from wall to wall preventing it. The conus arteriosus readily dilates, and when it does so it carries the origin of the pulmonary artery outwards and upwards. With regard to the second explanation, it has this important practical significance, that visible pulsation of the right ventricle may be proof of dilatation of the left heart, and herein, perhaps, lies its chief value as a clinical sign.

Accentuation of the Pulmonary Second Sound.

Returning to the auscultation of the right heart, you only require to be reminded that the second sound produced by the closure of the pulmonary cusps may be accentuated in its own area. The accentuation means heightened pressure in the pulmonary artery, and, when primary lung changes are excluded, it means increased fullness, with the consequent degree of increased difficulty, in the pulmonary circuit. Accentuated pulmonary second sound thus indicates the measure of impairment of the left ventricle which has determined the increased difficulty in the pulmonary circuit. Whenever the left ventricle is overstrained some degree of dilatation occurs. This necessarily means an increase of residual blood in the ventricle, a corresponding measure of greater distension of

the left auricle, and the increased engorgement of the pulmonary vessels which leads to the accentuated pulmonary second sound. You have here, then, a second means provided by the right heart of helping your judgement as to the state of the left heart.

Systolic Murmur in Pulmonary Artery.

The presence of a systolic murmur in the second left intercostal space close to the sternum and strictly limited to this area is frequently noted. The conditions in which the murmur is present shall be presently dealt with; meanwhile I ask you to note that the murmur is heard over the first part of the pulmonary artery; that this is the position of this part of the artery is confirmed not only by observations made after death, but also by the fact that, either by palpation or auscultation, or by both, the vibrations caused by the closure of the pulmonary cusps or the localized intensity of the sound enables us to locate with absolute precision the exact point where the artery joins the conus arteriosus. An interesting and important characteristic of the murmur is that during inspiration, especially during a somewhat deep inspiration, the murmur disappears to reappear during expiration.

As to the conditions in which this murmur is present, chlorosis may be taken as an example. In chlorosis three murmurs may be present over the precordia—namely, a mitral systolic, a tricuspid systolic, and a pulmonary systolic. The mode of differentiating tricuspid from mitral and from aortic systolic murmur has been already dealt with. That these murmurs are not due primarily to the impoverishment of the corpuscles in haemoglobin is proved by the fact that the murmurs are pronounced in a case of chlorosis if the patient, usually a young woman, has been struggling to carry on her ordinary working duties in spite of an increasing sense of physical weakness. When such a patient comes into hospital and is kept in bed, two of the three murmurs commonly disappear in a few days, long before any material improvement has been effected in the blood. The mitral and tricuspid murmurs are due to dilatation and to such myocardial weakness as allows of leakage at both these orifices during systole. In other conditions of debility these murmurs may also be present. Apart, however, from the presence of mitral and tricuspid murmur, the systolic murmur in the pulmonary artery is frequently present as the only murmur heard over the precordia, and it is this murmur I specially want to explain the significance of and to show you that its presence enables us to judge of the condition of the left heart. The explanation I offer to you of the mode of production of this murmur is as follows: We have already seen that the right ventricle is lifted by dilatation of the left heart into close contact with the chest wall, so that its pulsations may be visible in the third, fourth, and fifth left spaces; systole of the right ventricle, especially systole of that portion of it called the conus arteriosus, carries the origin of the pulmonary artery obliquely downwards and to the right; if you endeavour to simulate this action, you will find that the anterior and posterior surfaces of the artery at its origin are approximated, and that a relative narrowing is thereby produced. This narrowing is, to my mind, undoubtedly the mechanism by which the murmur is produced. It explains the disappearance of the murmur during inspiration, for with inspiration the heart has a freer forward movement and the kink is prevented. This explanation gives an important value, and I believe the true value, to this murmur. Its presence becomes a proof of a dilated left heart with usually an enfeebled myocardium. It is present in anaemia, in febrile conditions, in debility, and as a result of heart strain. It belongs to the class of murmurs which are called *functional* to differentiate them from murmurs due to endocarditis and called *organic*. The murmur is present in cases of organic mitral lesion when the origin of the pulmonary artery has not been carried to the left and upwards by the dilatation of the conus arteriosus.

Pulmonary Diastolic Murmur.

Pulmonary diastolic murmur not due to endocarditis at this orifice is, in my experience, very rare. I have, however, recently seen a case of the kind. The patient was a young Royal Field Artillery officer who had returned to light work after recovering from an extremely feeble heart following upon a febrile attack in Flanders. The light work had proved too much for him, and he showed a faint diastolic murmur over the pulmonary orifice, a faint systolic, tricuspid murmur, a right auricle considerably to the right of its normal position, and a marked ventricular systolic wave in the neck veins. This was a case of pure strain in a heart that had materially improved in myocardial strength but not sufficiently to withstand the strain of the work laid upon it. The murmurs disappeared under physical rest and medicinal treatment.

Explanations.

The explanations already given of the phenomena with which we have dealt may be supplemented with advantage. In the first place, feebleness or absence of the first sound over the right ventricle means weakness of the myocardium of that chamber, and in stout people it commonly means fatty infiltration. Cases of this kind die suddenly from some sudden physical effort, death resulting from right heart failure, not left failure. As we have seen, accentuation of the pulmonary second sound, systolic pulmonary murmur, systolic tricuspid murmur, diastolic pulmonary murmur are the auscultatory phenomena, having origin on the right side of the heart, which may be present. They all indicate strain, varying in degree, of course—strain in the sense that the myocardium is being called upon, or has been called upon, to do more than it can do comfortably or satisfactorily. Such strain leads to dilatation, sometimes of the left heart, at other times of the right, sometimes of both. Some of the phenomena produced on the right side of the heart become the index and guide to strain of the left heart; these are especially accentuation of the pulmonary second sound, pulmonary systolic murmur, and pulmonary diastolic murmur. The presence of tricuspid murmur shows, of course, that the right ventricle is dilated, or atonic and enfeebled, either from initial strain or from the strain due to heightening of the pulmonary blood pressure the consequence of initial strain of the left ventricle. The auscultatory phenomena result from relaxation and dilatation, and it is that fact which gives them their clinical significance and importance. Visible pulsation of the right ventricle has the significance already dwelt upon, and it is sometimes more valuable as an index of left-sided than of right-sided dilatation.

Venous Pulsation.

I now ask your attention to a further source of information—to another set of phenomena from which important deductions can be made and which may lead very promptly to accurate diagnosis. I mean pulsation in the veins of the neck. There are two methods of making observations on these: the first is by means of the unaided eye. Fullness and pulsations, the rhythm of pulsations as timed by cardiac systole, whether they are entirely synchronous with systole, or what their time relation to systole may be, can be seen and noted, and let me impress upon you that this field of observation ought to be diligently explored by you. The second method of investigation is by means of that beautiful clinical instrument invented by Sir James Mackenzie, and known as Mackenzie's polygraph. The latter method gives details which the eye cannot provide; at the same time I repeat that the unaided eye carries us a long way.

Pulsations in the veins of the neck are of course determined by the right side of the heart. This simple proposition is fundamental, and when it is fully grasped the second step is inevitable—namely, that such pulsations can only be caused by contraction of the ventricle or of the auricle. Pulsations are therefore systolic in time when ventricular in origin; all other pulsations are diastolic in time, and have their origin in the auricle. In the consideration of this aspect of our subject I confine myself to cases which are at present under observation, and I shall show you on the screen tracings made by means of the electro-cardiograph and by means of Mackenzie's polygraph.

CASE I.—R., a woman aged 65, had a pulse-rate of 40 when I first saw her. The pulse-rate corresponded with the number of ventricular systoles. On inspection of the veins in the neck there was visible a wave synchronous with ventricular systole, and between each of these another wave, which was presumably auricular systolic

in time, and it was so regular that there was little doubt that the case presented the phenomena of a 2 to 1 heart-block. I show you the polygraph tracing (Fig. 1) in which

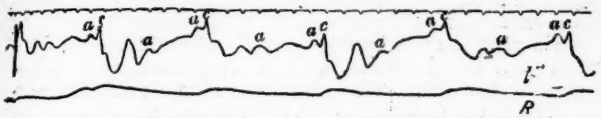

FIG. 1.—Case I. Polygraph tracing, 2 to 1 heart-block.

each wave marked *a* is produced by the auricle which is contracting quite rhythmically; the wave *c* is the communicated wave produced in the carotid artery. A few

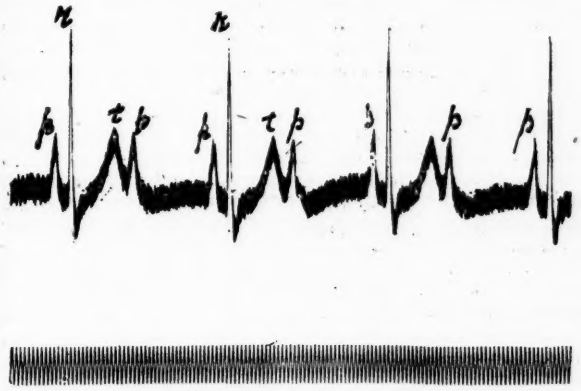

FIG. 2.—Case I. Electro-cardiogram, 2 to 1 heart-block.

days later the electro-cardiogram (Fig. 2) was taken, and you note that each wave *r* which is near the commencement of the ventricular movement is preceded by two auricular contractions marked *p*. The diagnosis of a

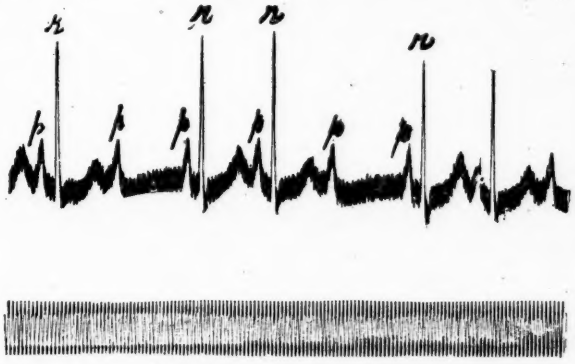

FIG. 3.—Case I. Alternate ventricular systoles preceded by two auricular systoles.

2 to 1 heart-block was thus confirmed. This patient's heart was improving, and even at the same *séance* as gave us Fig. 2, Fig. 3 was also obtained, and shows that only every alternate auricular systole *p* was *not* followed by the ventricular wave *r*.

CASE II.—W., a man aged 60, with marked cardiac irregularity, showed in the neck to the unaided eye a confused succession of undulatory movements, in addition to the respiratory distensions and emptyings. The polygraph tracing from the neck and the radial artery (Fig. 4) gives the position of the communicated carotid pulse

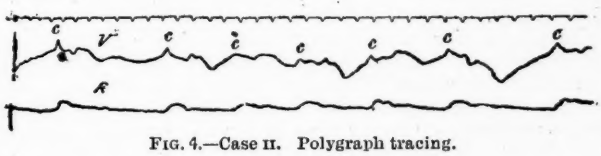

FIG. 4.—Case II. Polygraph tracing.

marked *c*, and you note there is an absence of the auricular wave present in the preceding tracings. In fact, there is no evidence here of rhythmic auricular systoles; there is practically what used to be called paralysis of the auricle, but is now known as auricular fibrillation. The electro-cardiogram (Fig. 5) bears out the diagnosis of extreme irregularity, the absence of a true

FIG. 5.—Case II. Electro-cardiogram, no auricle wave.

auricular wave, and the opinion that the patient had a fibrillating auricle.

CASE III.—S., a man aged 54, with a systolic mitral murmur and a large heart, showed a ventricular systolic venous wave in the neck. The tracing (Fig. 6) shows the position of waves *a* and *c* as taken by the polygraph.

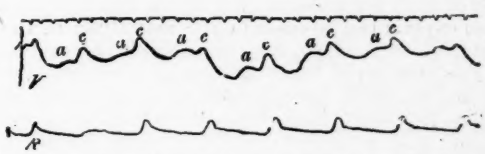

FIG. 6.—Case III. Polygraph tracing, in which the venous pulse seemed to be systolic.

The timing of visible venous pulsations is sometimes difficult, but in many cases ventricular systolic and auricular systolic waves can be separated, and their presence must be a measure of the fullness of the right side, especially of the right auricle.

I do not follow our subject further to-day, but you will understand that the study of the means by which the right side of the heart can be investigated, and the method of interpretation of the phenomena which I have presented to you, are able to guide you to a true estimate of many a heart that will come under the consideration of some of you, probably in the near future. The matters I have dealt with lie at the foundation of a true understanding of overtaxed hearts.

THE THEORY OF BLOOD PRESSURE MEASUREMENT

WITH SPECIAL REFERENCE TO THE USE OF SCHEMATA AND BLOOD PRESSURE INSTRUMENTS, TOGETHER WITH AN EXPLANATION OF THE DISCORDANT RESULTS ARISING FROM THE APPLICATION OF THESE INSTRUMENTS.

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THE study of blood pressure measurement has been of slow growth. The literature of the subject in past years shows how varying types of measuring instruments were employed, how the readings of systolic pressure obtained by them differed with the type of instrument; how with the same instrument discordant readings were obtained from arteries in different situations, where equality or something approaching to equality of reading might have been expected.

Much attention has also been given to the fixing of the diastolic standard. Here also disagreements were to be met with, disagreements both on the nature of the auditory and on the nature of the oscillatory index. Recent work, however, has made possible methods of accurately determining both the systolic and the diastolic pressure in the human subject.

Considerable progress, apart from the fixing of standards, has been made in the theory of blood pressure measure-

ment. A wider knowledge of the factors involved now renders capable of explanation many of the difficulties and inconsistencies of blood pressure measurements. Let us consider first the theory involved in the use of schemata in the elucidation of the phenomena of blood pressure measurement. Such schemata aim at the simplification of the factors involved. The schemata used by Erlanger, by MacWilliam and his co-workers consisted of a compression chamber filled with water in which an artery was placed, and through this artery a flow of water was maintained under a pressure made to pulse from diastolic to systolic level. A constant peripheral resistance was arranged to impede the flow from the artery. In the latest schema used by Erlanger the resistance is infinite, and there is no flow.

Now all these schemata simplify the factors involved in blood pressure measurement, but they neglect a highly important factor which Flack, Hill, and McQueen have drawn attention to—namely, the necessity of providing a peripheral *resistance which should increase pari passu with the increase of the compression pressure*, thereby approximating closely to the physical conditions which pertain to the use of the armlet on the human being. By the provision of such a resistance Hill, Flack, and McQueen were able to explain the increase in the amplitude of the pulse tracing (known to clinicians) that is obtained from the radial artery at the wrist when the armlet is made to compress the upper arm with pressures varing from 0— to just below diastolic pressure; they were also able to elucidate the mechanism of production of the *dull* (Korotkoff) sounds which are heard on auscultation of the artery below the armlet. They showed that the pulse-wave passing under the compressing armlet was actually augmented as the compressing pressure rose from 0— to just below diastolic pressure, and this augmented pulse-wave stretched the arterial wall beyond the normal, and so gave rise to those dull tension sounds which are heard when the compression is below the diastolic pressure. Thus, when Erlanger and MacWilliam simplify their schemata and make the peripheral resistance either a constant or an infinite resistance, they appear to us to ignore one of the most essential physical factors involved, and lose thereby a knowledge of an essential part of the phenomenon of the Korotkoff sounds—namely, the mechanism of the production of the dull sounds.

It has been found by Flack, Hill, and McQueen that in their schema, with a properly contrived peripheral resistance, the systolic pressure is accurately measured by that pressure which obliterates pulsation (felt in a piece of artery placed beyond the compression chamber), and that diastolic pressure can be no less accurately measured either by the auditory method (sudden diminution of sound) or the oscillatory method (maximal pulsation). MacWilliam, using his imperfect schema, failed to get agreement between the auditory and oscillatory indices. The compression in all forms of schemata used by the different workers is a fluid one and so equally applied all round the artery placed within the compression chamber. Accordingly the assumption is made that such schemata more or less accurately resemble the conditions of an armlet placed round the upper arm when compression is applied.

One is led to believe that the tissues, muscles, tendons, etc., which lie in relation to the brachial artery transmit the pressure precisely as the fluid round the artery in the compression chamber. However, it was exactly on this point that older writers had their doubts. Tiegerstedt called attention to the possibility of a loss of pressure in transmission through varying integuments. The same idea is still to be noted in Erlanger's recent paper on the mechanism of the oscillatory criteria. Here, then, we must consider these questions: Do the tissues transmit pressure like water? Does a muscle with an elastic membrane surrounding it transmit pressure precisely as water? Or do the muscles, tendons, connective tissue transmit pressure but imperfectly, and are all our measurements more or less approximations?

Let us analyse more closely the factors involved in a circular compression chamber. One may state that the pressure must not merely be delivered equally all round the artery, but, what is equally important, the fluid or air, if air be used, must be capable of being moved with each pulsation—that is, the compressing pressure must be applied in a vibratory manner, and the periodicity of its vibration must be the periodicity of the pulse.

If the compression pressure be rigidly applied the whole schema fails. This was shown to be the case by Flack, Hill, and McQueen, and was brought out again later when the compression tube was applied to the femoral artery in certain animal experiments carried out by Erlanger. He notes that the Korotkoff sounds always disappear when the closing of the stopcock, which renders his arteriograph more rigid, catches the pulse in the diastolic phase. In other words, a circular compression chamber of a pressure above diastolic, made rigid at the moment of diastole, holds the artery closed during the entire pulse cycle. It is quite obvious that it should do so, because the pulse must simply beat against the walls of an artery compressed and deformed into a flattened shape, while in diastole, and then surrounded by a rigid medium. An artery, if it is to expand during the pulse pressure phase, must expand by virtue of its power to move the whole compressing medium.

Accordingly those who use a schema with compression chamber to determine the phenomena involved in the estimation of systolic and diastolic pressure must use a schema which permits of the compression being applied in such a way that it can yield and be pulsed, or, to use the terminology of Erlanger, the medium in the chamber must have a sufficient amount of "compressibility."

Hill, Flack, and McQueen and Ingram first drew attention to this phenomenon in their study of arteries placed superficially and resting on bone—for example, the dorsalis pedis, temporal, or the aberrrant radial artery. When the bag of Hill's pocket sphygmometer was placed on an aberrant radial artery at the back of the wrist or on the dorsalis pedis, a systolic reading of, say, 40 to 45 mm. of Hg was obtained. The artery was deformed at pressures below diastolic pressure, and as the compressing medium, the bag, was not capable of being transformed into a vibrating or compressible pressure by the beat of the aberrant radial artery alone, or by the dorsalis pedis alone, the pulse ceased to pass below the bag. On the other hand, when an armlet was placed over the aberrant radial artery at the back of the wrist so that in addition it embraced the pulsing tissues of the forearm on the front of the wrist, the reading rose to 110 or 115 mm. of mercury, a close approximation to the real systolic pressure. When, on the other hand, the front of the forearm was encased in a wooden groove, and the armlet put on outside this, so that pressure of the armlet could be applied on the aberrant radial artery, but ceased to be under the influence of the pulsing tissues of the front of the forearm, the reading fell to 40 or 45 mm. of Hg, a precisely similar reading to that obtained by Hill's bag.

In the one case the artery is deformed by the compression from the circular into the oval or flattened shape, and the frictional resistance to the passage of the pulse wave is thereby so increased that the pulse spends its force in dilating the elastic wall of the artery *above* the point of compression, and does not pass through. In the other case the veins and capillaries are compressed so that blood cannot be expressed, and the whole mass of blood vessels in the compressed area becomes filled with blood, which pulses, and the artery keeps its circular form, and cannot be deformed until the compression rises above the systolic pressure.

It is obvious that the blood flow is not absolutely stopped at any pressure under systolic. It continues to escape from the veins as the systolic pressure in the mass of compressed tissues overcomes the pressure of the compressing armlet, the capillary channels becoming all filled to distension. The tissues under the armlet become comparable to the brain enclosed in the skull, where, with each arterial pulse, an equivalent venous escape takes place.

The necessity of applying compression so that the whole mass of tissue vibrates with the pulse was first emphasized by Hill, Flack, and McQueen. To use the terminology employed by them, at each beat of the pulse the compressing bag or armlet must be lifted off the artery; the damper must be a vibrating damper if true systolic readings are to be obtained.

When the armlet embraced the aberrant radial artery together with the whole forearm, the pressure in the armlet became a vibrating pressure vibrated by the pulse

which affects the whole mass of tissue in the front of the forearm, all the vessels of which mass are filled with blood. When, on the other hand, an artery lies on bone and is alone compressed by the armlet or Hill's bag, the artery, *per se*, is powerless to lift the armlet or bag at each pulse; the pulse strikes the artery deformed near diastolic pressure and fails to pass through.

The conditions are precisely similar to those produced by Erlanger when he closed the stopcock of his schema during diastole, and at the same time made rigid the rubber membrane of his apparatus. The action of the simultaneous pulse of all the vessels in the mass of tissue compressed by the armlet or bag in pulsing the armlet or bag off the artery, thereby rendering the whole compressing system compressible, Flack, Hill, and McQueen designated by the term "resonance."

It was shown that when a pressure in the armlet was raised by, say, 10 mm. Hg, those veins under the armlet with an internal pressure lower than 10 mm. of Hg were compressed, and the whole capillary area rose to 10 mm. of Hg pressure. So with each increment of pressure in the armlet an equivalent rise of pressure in the capillary system took place, so long as the systolic pressure of the artery supplying the capillary area was not overtopped and the artery shut up. Consequently the pressure that an armlet exerts on the mass of tissues is obtained through the compression of the veins, and the mass of blood congesting in the tissues through the compression of the veins transmits the pressure to the artery. Here one has the counterpart of the fluid in the schema, and the pulsing beat of the mass lifts the armlet off the artery precisely as the mass of fluid surrounding the artery in a schema, constructed of suitable resilience, is lifted by each beat of the artery. In the case of the schema the artery by its pulse moving the arterial walls transmits their vibration to the compressing mass of fluid. In the case of the armlet the pulse in the main artery passes into all the arteries and arterioles of the mass of tissue embraced by the armlet, and it requires the sum of all these arterial pulsations to vibrate the armlet, or, to use the terminology of Erlanger, to render the armlet "compressible." The experimenter arranges his schema so that the artery enclosed is fully capable of moving the compressing mass around it. But when an armlet is used, it is found that the main artery alone is insufficient, and that the throb of the whole mass of tissue enclosed is required.

There is one essential condition to be complied with before a blood pressure instrument can measure accurately. It is obvious that it must be broad enough to compress a sufficiently large area of veins, and so embrace a sufficiently large enough pulsing area around the artery.

The first blood pressure instrument devised by Herissart conformed to that requirement. The bag or capsule as pictured by him was broad. Succeeding inventors, endeavouring to improve the instrument in portability or neatness, diminished the size of the bag, with resulting inaccuracy.

When a small bag is applied to an artery it closes the veins underneath it; but owing to the multiplicity of lateral connexions in the vascular system, the veins and capillary system pressed on are obliterated, through the blood escaping by these collateral channels. Similarly, the physician who places his finger on the radial artery (with, say, a systolic pressure of 130 mm. of Hg in it) deforms the artery at a pressure of, perhaps, no more than 40 mm. of Hg, and if the systolic pressure were 200 mm. of Hg, his finger would deform the artery at 70 mm. of Hg or so, depending not on the height of systolic pressure but on that of the diastolic pressure. Consequently, his estimation of changes in blood pressure in an artery is only relative; the range through which he appreciates rises of pressure is limited, and his reading of change of systolic level really depends on whether the diastolic pressure is raised correspondingly to the rise of systolic pressure. The finger of the physician easily deforms the artery into the oval or flattened shape, and so prevents the pulse from passing, because the area of veins compressed by the finger is totally inadequate. There is no mass of pulsing tissue under the finger, and the finger becomes a rigid damper.

In a blood pressure measuring instrument, then, the area of the compressing bag or armlet must be adequately broad to compress sufficient veins, so that the blood is congested under the bag or armlet and the pulsation of the mass of tissue is secured.

Instruments such as Oliver's haemodynamometer, with a small pad placed on an artery from which systolic and diastolic pressures are obtained by an oscillatory index, fail because the pad is not broad enough. They deform the artery, as the finger does. The bag of Hill's pocket sphygmometer, on the other hand, is made large enough to compress the whole of the forearm; the hand enclosing the bag compresses the back of the wrist. Here we have the explanation of many of the discordant readings in the literature of blood pressure measurement. The instruments varied in the breadth of the area which compressed the veins.

There remains to be considered the discordant readings obtained with the same instrument on different sites. It was pointed out by Tiegerstedt that readings of the systolic pressure in the temporal artery varied greatly from those of the radial artery taken with the same instrument. Loss of pressure due to the covering tissues in the case of the radial artery was called in to explain the discrepancy. That false idea—of an obstruction which the tissues place in the way of accuracy in blood pressure measurement—runs through most of the literature and still persists. Now when the instrument was applied to the temporal artery, where it lay exposed on bone, the reading was certain to be erroneous and too low. In fact, the reading would be exactly comparable to the aberrant radial artery or dorsalis pedis. Here we have no mass of tissue surrounding the artery, where with the simultaneous compression of the veins a pulsing mass could be developed around the artery. Consequently, if the instrument used were broad the readings from the radial and from the temporal artery must differ. But where the instrument had a narrow bag or pad, the readings of the radial artery and the temporal artery would approximate, and both would be equally erroneous. Because with a narrow pad or bag the tissues surrounding the radial artery, though there to be utilized, could not be brought into play.

Consequently, readings become accurate, not because pressure can get at an artery without loss through tissues, but because when sufficient tissues, and these amply supplied with blood, are embraced under the compressing pressure, the pulse of the congested tissues enables the compressing pressure to be a resilient pressure and not a rigid pressure, and prevents continuous deformation of the artery until the systolic pressure is overtopped. Flack, Hill, and McQueen showed that when all the vessels of the forearm are dilated by heat, while those of the upper arm are constricted by an ice-bag, then the artery in the upper arm is obliterated by a lower armlet pressure than it is in the forearm. They thus demonstrated the importance of the blood in the tissues by a conclusive experiment.

When one turns to the consideration of auscultatory indices, the same laws apply. Using Hill's bag on the aberrant radial artery (where it lay on bone) sounds were heard, but not sounds similar to Korotkoff's sounds. The level of pressure and the range of pressure at which sounds occur were all erroneous. The diastolic index was absurdly low and the systolic index was 40 or 45 mm. of Hg, because the artery was deformed and held deformed by the rigid pressure. When the armlet was applied to the aberrant radial and the front of the forearm was enclosed in the wooden groove so that the armlet did not come under the influence of the pulsing tissues, the Korotkoff readings were exactly the same as with Hill's bag and wrong.

When the armlet was made to embrace the forearm—that is, the mass pulsing tissues—the readings in the aberrant radial rectified themselves.

Consequently, when Erlanger writes, "Views assigning prime significance to the tissues surrounding the artery are invalidated by the fact that the bare artery suffices for the production of characteristic sounds," his argument is fallacious. The bare artery under the armlet or under Hill's bag neither gives the characteristic Korotkoff's sounds nor does it suffice to indicate systolic and diastolic pressure. It produces sounds the whole range of which appear below diastolic pressure.

The sounds which Erlanger succeeded in hearing in the isolated artery he obtained by compressing the artery

circularly with fluid, and after carefully arranging that the size of the arteriograph and its compressibility were such that it was within the power of the artery to pulse the whole compressing mass of its walls.

Erlanger does not seem to realize that what makes the armlet on the upper arm as "compressible" as his arteriograph is not the beat of the brachial artery alone, but the simultaneous throb of the whole mass of tissues below the armlet.

Further, the genesis of Korotkoff's sounds owe their fundamental origin to this mechanism brought into play by the compression of the surrounding tissues. Erlanger states: "Hill, Flack, and McQueen maintain, *without offering any experimental evidence* for their view, that the compressing armlet converts the compressed area of the arm into a resonating mass; the pulse is not damped down in the labile arteries, but strikes the blood, which fills to distension, not only the main artery, but every patent arteriole throughout the mass, and causes the whole tense mass to vibrate."

It is difficult to believe that Erlanger has followed the series of researches of Hill, Flack, and McQueen. In their work they show how the veins are compressed and the peripheral resistance rises as compression of the armlet rises; how this rise in pressure stretches the arterial wall and produces the dull sounds; how the blood is congested in the mass of tissues under the armlet. Consequently, through this action of the armlet on the tissues, both under it and beyond it, each pulse strikes the blood, and the arterial wall experiences an additional strain as the kinetic energy of the flow of blood meets the obstacle of contained blood in front of it. Erlanger describes this phenomenon as water hammer, but the use of this term brings out no new idea to that already demonstrated by Hill, Flack, and McQueen.

We conclude, then, that—

1. To give accurate information on the factors concerned in blood pressure measurement, a schema must permit of compression being applied to an artery in a pulsable and not rigid manner, and a rise of peripheral resistance *pari passu* with increasing compression must be arranged for.

2. When an armlet or bag of Hill's pocket sphygmometer is made to compress an artery where it lies on bone with little tissue round it—for example, temporal, dorsalis pedis, aberrant radial—it deforms the artery and prevents the passage of the pulse at a pressure less than diastolic. The finger of the physician acts in the same way, and therefore cannot estimate the systolic pressure accurately.

3. Compression of the tissues surrounding the artery so as to block the venous outlets is essential to accurate blood pressure measurement. This congests the blood beneath and beyond the armlet or bag. The pulsing of the congested mass of tissues renders armlet or bag capable of delivering a circular compression to the artery, and one which yields to the pulse and prevents deformation of the artery until the systolic pressure is overtopped.

4. Sufficient area of veins must be blocked if the blood pressure instrument is to be an accurate one, consequently the bag or armlet must be broad. The bag, together with the observer's hand, enclose the forearm, and so makes the bag of Hill's pocket instrument equivalent to the armlet. Failure to make the bag broad accounts for many inconsistencies in the literature of blood pressure measurement.

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FOR some years rabies had decreased in France almost to vanishing point. Owing to the large number of dogs which since the war have taken to a wandering life and thus escape police control, there has been a considerable recrudescence of the disease in many departments. The number of persons bitten by dogs suspected of rabies and treated at the Paris Pasteur Institute was 373 in 1914 and 654 in 1915. In 1916, from January 1st to May 13th, it was 420; this figure, if the same rate of progression is maintained, will give a total of more than 800 for the whole year. On June 9th the Paris prefect of police issued an order that in the streets all dogs must be led in a leash or muzzled and have a collar bearing the name and address of their owner.

THE SYSTOLIC PRESSURE IN ACUTE NEPHRITIS.

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I HAVE recently treated at a base hospital in France several hundred cases of nephritis occurring amongst the soldiers of the Expeditionary Force, and have taken advantage of the opportunity thus afforded for the study of the blood pressure during the acute phase of this disease.

The characters of war nephritis have already been described;[1] here it may be said that it presents the usual features of an acute nephritis of moderate severity, and that, as in other forms of acute nephritis, the blood pressure appears to be always raised at some period during the course of the disease.

Duration of Elevation of Pressure.

In cases of average severity the pressure was usually raised for a period of from five to ten days after the patient's admission to hospital; not infrequently, however, the elevation persisted for several weeks, so that the patients were transferred to England with the pressure still high.

Range of Systolic Pressure.

During the early stages the systolic pressure usually ranged between 135 and 180 mm. Hg; exceptionally, and particularly in association with convulsions, it reached 200 or 210. The pressure was thus lower than that usually seen in chronic nephritis; indeed, a pressure of over 200 was found to be presumptive evidence that the disease was really of long standing.

Diurnal Variations in Pressure.

A striking feature was the wide diurnal variation which often occurred between the morning and evening blood pressures. Just as in certain diseases there is a wide difference between the morning and evening temperatures, so in this form of nephritis some agent appears to be at work which causes an evening rise of blood pressure and a morning fall; the difference between the morning and evening pressures may be 20, 30, or even as much as 60 mm. Hg (Chart 1 and Chart 2).

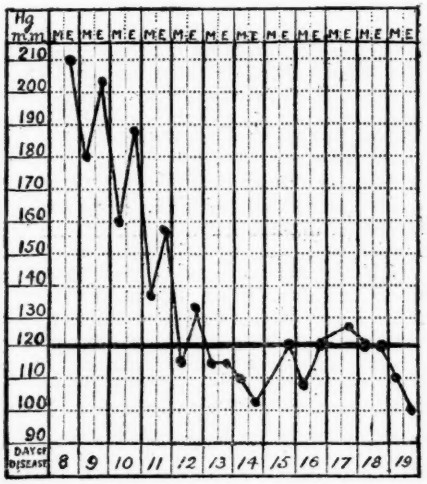

CHART 1.—Systolic pressure, taken twice daily at 10 a.m. and 6 p.m., and recorded in millimetres of mercury. "Staircase" descent.

All the charts here reproduced show the systolic pressure taken twice daily, namely at 10 a.m. and 6 p.m., and recorded in millimetres of mercury. The palpatory method was used, with the patient recumbent; a tambour sphygmomanometer (Tycos) was employed.

If Charts 1, 2, 3, and 4 be examined, it will be noticed that had the morning blood pressure alone been recorded, a totally erroneous idea of the course of the pressure would have been obtained; indeed the chart would have been as misleading as the temperature chart of a case of tuberculosis upon which only the morning temperatures were shown.

When the blood pressure was falling from day to day, it usually did so in a series of morning remissions and evening rises, thus forming a descending "staircase"

(Chart 1). Exceptionally, when the pressure fell unusually rapidly, the evening pressure was lower than that

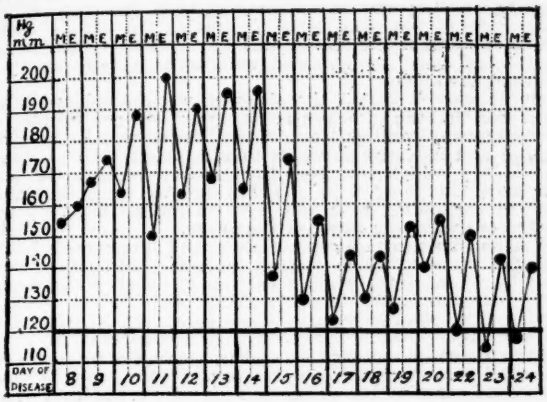

CHART 2.—Systolic pressure, taken twice daily at 10 a.m. and 6 p.m., and recorded in millimetres of mercury.

recorded on the preceding morning (Chart 3); such a chart may be compared to that of a case of pneumonia terminating by crisis.

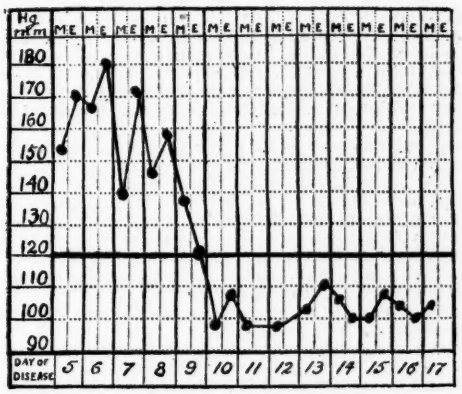

CHART 3.—Systolic pressure, taken twice daily at 10a.m. and 6 p.m., and recorded in millimetres of mercury. Termination by crisis.

A frequent type of record is shown on Chart 4. During the early phase of the disease the pressure rises and falls irregularly; a stage is then reached of morning remissions

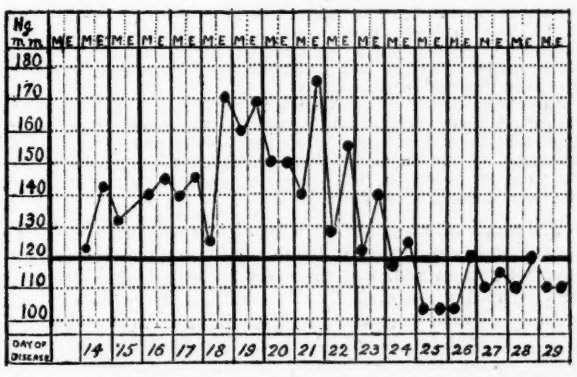

CHART 4.—Systolic pressure, taken twice daily at 10 a.m. and 6 p.m., and recorded in millimetres of mercury.

and evening rises forming a descending "staircase"; subsequently the pressure becomes subnormal, rising later to the normal.

Association with other Symptoms.

In association with uraemic convulsions (14 cases) the pressure was found to be always raised, but to a variable extent; in some cases it was 200, in others considerably lower; in one severe case the systolic pressure taken a few hours before the fit was 135. Immediately after the fit the pressure was often over 200, probably owing to the great muscular exertion.

Two symptoms, usually nocturnal in incidence, appear to be specially associated with the great evening rises of pressure—namely, paroxysmal dyspnoea and headache. The connexion between these symptoms and the rise in pressure is undergoing further investigation.

Usually the amount of albumin diminished *pari passu* with the fall in pressure, although residual albuminuria often persisted after the pressure had fallen to the normal. Sometimes, however, the two curves bore no relation to one another. During convalescence transient elevations in the blood pressure occasionally occurred; sometimes they followed an advance of diet, but often they formed a part of a general recrudescence of symptoms for which no cause could be assigned.

The estimation of the blood pressure was found to be of great value both in diagnosis and in judging of the patient's progress. As noticed by Captain W. Langdon Brown,[2] those patients appear to do well in whom the pressure is at first high and rapidly falls to the normal. Often, however, the morbid process in the kidney appeared to continue after the pressure had fallen to the normal.

Conclusion.

The blood pressure was found to be always raised during some stage of the course of the disease, although not to so great a height as is the case in chronic nephritis. Wide diurnal variations in the pressure were usually present, the pressure being highest in the evenings.

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CONGENITAL CYSTIC KIDNEY WITH LOCAL DIFFUSE PERITONITIS: SURGICAL DESTRUCTION OF PART OF KIDNEY: RECOVERY.

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HYDATIDS may develop in the kidney, and a dermoid cyst containing hair has been found in place of that organ in a healthy sheep.[1] Apart from such rare conditions there are two chief forms of cystic kidney. In one an obstruction in some part of the large urinary ducts causes dilatation of the pelvis or calyces by modified urine, pus, or tuberculous matter. Retention cysts thus formed are by far the commonest cystic kidneys. Congenital cystic kidneys are altogether different. In them there is no evidence of obstruction in the renal pelvis or in any lower portion of the urinary tract. The whole renule is transformed into a mass of small cysts, from about half an inch in diameter downwards, with generally a few larger cavities. The walls between are flattened by pressure, so that an irregular honeycomb appearance is presented on section. The cysts usually contain a clear fluid, but in one specimen various cysts contained a transparent fluid, a dark yellowish or brown and viscid substance, and turbid nearly solid material respectively.[2] Some cysts are dilated tubules, or Malpighian bodies, with their epithelial lining recognizable under the microscope. In other cysts there is no lining epithelium.

One specimen in the College of Surgeons' museum was associated with a similar cystic formation in the liver, and the condition has been found with multiple cysts in the spleen and thyroid. It also occurs with congenital imperfections such as heart malformations, spina bifida, and in anencephalic monsters. Frequently more than one member of a family is affected. These facts suggest, and it is generally believed, that a congenital cystic kidney is an abnormal development. Another view is that the condition is one of new growth, and, again, it has been attributed to an excess of connective tissue causing obstruction in the urinary tubules. It is possible that the pathology is not always the same, and there are cases of single cysts and of a few cysts in the kidney which are not associated with any obvious obstruction of the large ducts. These are generally unilateral, and whether they are modifications of the congenital cysts, or retention cysts,

or new growths is not clear. Congenital cystic kidneys have been found in a pony and in a kitten.[3]

This abnormal condition may exist without symptoms and the patient may die of some other disease at any time from infancy to old age, the cystic change being discovered at autopsy. All the effects produced are due to pressure on the kidney substance or on adjacent parts.

Obvious enlargement of one or both kidneys or a dragging pain caused by the weight may be the first indication of trouble. The condition is usually bilateral, but more advanced on one side, so that one kidney may distend the abdomen to an enormous size whilst the other, also cystic, is only slightly enlarged. Records show that in these circumstances the small kidney, although cystic, may produce sufficient renal excretion to maintain apparent good health, whilst the larger gives a modified secretion resembling that of a small granular kidney. The specific gravity and urea excretion are reduced, the amount of urine is increased and a small quantity of albumin is found in it.

As the kidney enlarges there is a liability to attacks of pain, sometimes accompanied by fever, during which the mass swells and hardens, shrinking again when the attack ceases. With the pain and fever haemorrhage from the kidney may be associated; this symptom is not obvious in every case, but blood discs in the urine are frequently reported.

Numerous specimens of congenital cystic kidneys are preserved in museums, but it does not appear that individual surgeons have had personal experience of many cases. Two have come under my observation. In the first I acted as assistant to Knowsley Thornton, and the nature of the case, published in 1890,[4] was not recognized until excision of the kidney was unavoidable. The other kidney was also cystic, but it acted so well that the patient lived five days, although she suffered from intestinal obstruction and underwent a second operation for that condition on the fourth day. It has in recent years been fully proved, by successful nephrectomies, that a small congenital cystic kidney can do all the necessary work. The second patient, whose case is now recorded, gave the following history:

She miscarried, at the age of 31, after two months' gestation, and no renal disease was then detected. Two years later, when eight months pregnant, she suffered from suppression of urine and amblyopia. Labour was induced, and with the first pain the patient had a fit, after which she was unconscious twelve hours. A living child, delivered by forceps, died six hours later. Convalescence was complicated by pain and swelling of the right kidney with fever, but complete recovery took place, except that the kidney remained big, and albuminuria, with increased secretion of urine, was persistent.

At the age of 36 the patient, being then abroad, lost much blood in the urine, and there was again pain and swelling of the right kidney with fever. Operative treatment was recommended but refused on the cabled advice of Dr. F. G. Crookshank, and the symptoms ceased after six weeks. About a year later another pregnancy was terminated at the eighth month by induction of labour, and an apparently healthy child was delivered without trouble in November, 1913, but died after twelve hours. Convalescence was uncomplicated, and good health was enjoyed for another year, although the right kidney was still obviously big, and the secretion of urine copious. During December, 1914, the patient felt ill, and on December 24th, after playing two rounds of golf—a quite usual exertion—she was seized with severe pain in the right kidney, which became big, hard, and tender, and there was blood in the urine. The temperature rose gradually until for three days it was between 102° and 104.8° F.

Dr. Crookshank, who had been in charge of the case, was on war duty, and Dr. S. H. Snell of Christchurch was consulted. He, in association with Dr. Hyla Greéves of Bournemouth, concluded that nothing but surgical treatment could give relief, and I saw the patient, then aged 38, on January 3rd, 1915. The kidney occupied the greater part of the right half of the abdomen, crossing the middle line, and standing out prominently below the ribs. It was so tender that no satisfactory examination could be made, and a slight enlargement of the left kidney was not detected. There was a little albumin in the urine, which had a specific gravity of 1010, but did not contain obvious blood. It was stated that before the attack began the urine was sometimes clear and sometimes thick. A feeble pulse (120), a temperature of 104.8° F., and a drowsy apathetic brain condition combined to suggest that the patient was dying from absorption of poisonous products. Her friends said that she appeared to be much more seriously ill than on any previous occasion, and it was also stated that the patient's sister died at the age of 38 from the same disease.

This history was obtained from the husband and friends up to the beginning of the last attack on December 24th, 1914. The husband stated that a cystic kidney was diagnosed by Dr. Crookshank after the first full time pregnancy five years before, and it appeared later that double congenital cystic kidneys were recognized at that time, but nothing that was said suggested the true nature of the disease. A diagnosis of suppurating cystic kidney was made with blocking of the escape of pus. Nephrectomy was considered desirable, but if, as seemed likely, removal of the kidney was impossible, it was thought that relief could be obtained with certainty and safety by draining the kidney.

On January 4th, 1915, the abdomen was opened, and it was then seen that the anterior part of a very long gall bladder was pushed forward well in front of the liver edge and was tightly nipped and indented about its middle, between that edge and the kidney, which was very hard and appeared to be solid. An area extending 4 to 5 inches around the gall bladder showed peritonitis, with adhesions so recent that they were easily separated by a sweep of the finger.

The diagnosis was clearly mistaken, and it appeared that the relief of pressure which seemed necessary could be effected only by removing the whole mass—an obviously dangerous, if not impossible, task. The left kidney was slightly enlarged. To decide whether enucleation could be accomplished the right kidney was exposed by incising the peritoneum covering it, and its whole surface was then seen to be cystic, the cavities being so small that the condition was hardly perceptible to touch. A second examination of the left kidney showed that it was similarly affected.

The nature of the condition was now obvious and an attempt to remove the kidney was considered unjustifiable. But the need for relief was imperative. The kidney was therefore opened through a second incision behind the peritoneum and its structure freely broken up by means of scissors and forceps. The finger alone could not be thrust into the kidney substance, which felt quite solid. No large cavities were opened, and only a small quantity of clear fluid escaped, but the size of the mass was considerably reduced. With the hand in the peritoneal sac as a guide, the region of the renal pelvis was avoided. The upper pole of the kidney, over which the evidence of recent diffuse peritonitis existed, was especially broken up and rendered flaccid. Two large drainage tubes were inserted towards the upper and lower ends of the kidney, and the anterior wound was closed.

The patient was very ill for a few days, and had much trouble from intestinal distension and incontinence of urine. Little discharge escaped and no urine from the drainage tubes, which were kept in nearly three weeks to relieve tension, and after they were quite short to facilitate deep healing. When they were removed the wound soon closed, the kidney being then much smaller than before the operation. The patient's condition gradually improved, and after six weeks she could walk a little, but there was a drag in the right side which prevented her standing upright. Since the operation there has been blood in the urine a few days before, during, and a few days after many menstrual periods, accompanied by pain in the kidney. In July, during a period, the patient lurched heavily from a sudden movement of a train, and then felt a severe stabbing pain in the left kidney for the first time. The left kidney became very big and tender. This attack passed off like the others, and after a time the patient was able to play golf on a putting green.

In November, 1915, after an injudicious attempt to take more exercise, she had a severe attack which did not begin with a period. To the usual symptoms were added vomiting and a rise of temperature. The right kidney was considerably enlarged and very tender, and the patient became so weak and pale that it appeared as if death might occur at any time. After a fortnight the symptoms ceased abruptly, and the conditions rapidly improved. The patient was kept in one room for a time, and became as well as she had ever been since Christmas, 1914. She was able to stand quite erect.

June 6th. Dr. T. Croft Neville informs me that the patient's condition is now very much better than it was six months ago. The right kidney extends below the pelvic brim, but the left is almost of normal size. The patient walks out daily when the weather is warm, but when it is cold she must stay in, and she cannot exert herself much.

This patient was first seen by those responsible for the operation in an acute condition, and the nature of the case was not recognized, but the need for surgical interference was correctly estimated. The failure to recognize the primary disease was due partly to the rareness of the condition, partly to the masking of the indications by the acute symptoms and partly to the diagnosis of cystic kidney, passed on by the husband and accepted in its ordinary meaning. The mistake was a fortunate one for the patient, because with a diagnosis of congenital cystic kidneys the chances of recovery would probably have been considered greater without surgical interference. But the diffuse peritonitis around the gall bladder could not have been recognized without exposure of the parts, and it is practically certain that this inflammation would have spread and proved rapidly fatal. The only useful procedure that might have been advised, if a diagnosis of congenital cystic kidneys had been made, was to reduce tension by emptying some of the cysts with a trocar and cannula from behind the peritoneum. This would have

required innumerable punctures because of the small size of all the cysts, and without inspection of the peritoneal cavity the need for special treatment of the upper part of the kidney could not have been recognized.

Good results seem to have been obtained in reported cases by removing the larger kidney, but it is doubtful whether this is a wise proceeding. Nephrectomy was not practicable in the case now recorded when I saw the patient. Where it is practicable, the effect must be to throw the whole burden of renal excretion upon the second kidney, which is also unhealthy, and which, therefore, will come to an end of its capacity sooner. The disease, after symptoms develop, seems to be inevitably progressive, and relief of tension by an operation which does not destroy more kidney tissue than is necessary would appear to be the ideal treatment if the symptoms indicate surgical interference. The case now recorded shows that diffuse peritonitis is a complication which, though not usually described, is to be feared, and that it may be cured and life may be prolonged by a timely reduction of tension. In this connexion it is interesting to note that the patient's sister is said to have died of the same disease at the same age as the patient when she was operated upon. Another important point shown by this case is the power of healing of a large wound in a congenital cystic kidney.

Medicinal treatment does not come within the scope of this communication, and it is extremely difficult to estimate its influence upon such a rare disease. Iodides seemed to have some beneficial effect, and Dr. Crookshank informs me that thyroid tablets were always useful, but the cystic change made progress in spite of all treatment. Child-bearing would appear to be dangerous whenever renal excretion is deficient, but the symptoms in the case recorded only became marked after the second pregnancy, and there is no evidence that the first and third were harmful. Rest and an invalid life seem beneficial now, but before Christmas, 1914, the patient was very active, playing golf almost daily, and often two rounds, her health being then very good. I am indebted to the above-named gentlemen for permission to publish their names, and especially to Dr. Snell for his management of the case after the operation.

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[1] Catalogue of Museum, Royal College of Surgeons of England, Pathological Series No. 3558A. [2] Ibid. [3] Ibid. [4] J. Knowsley Thornton: *Surgery of the Kidney*, pp. 42 and 93.

MEMORANDUM ON THE PREVENTION OF AMOEBIC DYSENTERY.

BY J. GORDON THOMSON AND D. THOMSON,
CAPTAINS R.A.M.C.

PRELIMINARY REMARKS.

IT has been proved that it is of the greatest importance to give a thorough course of emetine treatment to all cases of amoebic dysentery before discharge from hospital. Efficient treatment prevents the patients from becoming cyst carriers. Small doses of emetine, such as 3 or 4 grains given in 1-grain doses daily and then discontinued, must be avoided. Treatment such as this benefits the patients at the time, but it is actually dangerous, as these cases may relapse or become cyst carriers. They also run the grave risk of subsequently developing abscess of the liver. The dose of emetine required to bring about a complete cure varies with the case to be treated. Acute cases treated early may be cured by the continuous administration of emetine up to 7 grains. One grain must be given daily, and on no account should the dosage be intermittent. The giving of 1 or 2 grains and then stopping for a day or two and then continuing is to be avoided. Other cases require 10 grains and more; chronic cases have required 18 to 20 grains. In all cases of cyst carriers experimental evidence tends to prove that administration of emetine ought to be continued till at least 12 grains and sometimes more have been given. Where a microscopic examination of the faeces is impossible, the clinician must use his own judgement, and in all cases he ought to go on with the treatment even after all the symptoms have ceased. It is of the utmost importance to keep the patient in bed during treatment.

When a patient has become a cyst carrier he can as a rule be rendered non-infective by the administration of emetine combined with magnesium sulphate in doses of 2 drachms every four hours. Here if possible the treatment should again be controlled by the microscope. In most cases 10 grains clear out the cysts of the pathogenic entamoebae, but in one case we still found cysts after the administration of 13½ grains. This is sufficient to show that the result of treatment by emetine should be controlled by daily microscopic examination of the faeces, and it is also advisable to make another examination some time after the treatment has ceased.

We have now proved that flies are capable of ingesting cysts of the pathogenic entamoebae from infective material and depositing these in their faeces on food. The cysts of *Entamoeba histolytica* will persist for a month, and much longer under conditions in which the stool is not allowed to dry too much. It has been shown that the pathogenic cysts in faeces well diluted with fresh drinking water persist for weeks, and this has also been proved in the Central Laboratory. In Egypt, where the faeces are deposited in the open on sand by the native, we have a constant danger to the community from flies, water, and even blown sand. Fresh faeces can be quickly trampled up in the sand, and small particles of highly infective material adhering to the sand grains may be blown long distances.

PREVENTION.

The following recommendations regarding prevention are based on the foregoing facts.

1. *Thorough and Rapid Disposal of Faeces.*

In an army it is absolutely essential that all faeces should be disposed of in such a way that flies can have no opportunity of alighting and feeding on them for even one second. Hence it is necessary to employ, in the absence of a flush-water system, either fly-proof latrines or metal buckets containing kerosene or some other antiseptic. Kerosene wards off flies, and it is inflammable and assists in the incineration of the faeces later on. No random defaecation must be allowed even some distance from the camp bounds. This is a common occurrence in Alexandria. The sanitary squads should devote their attention not only to their own compounds, but to the neighbouring clear areas used by the native as latrines. This is of great importance, as we have found cysts of the pathogenic entamoebae in samples taken at random from deposits on the seashore. It has been found difficult in many cases, even in our own soldiers' camps, to make men use the latrines. The reason for this is obvious, as often the latrines are very unattractive and in many cases repulsive to men accustomed all their lives to the privacy of a water-closet. In an army such as now exists, in which men of all grades of society are mingled together, more care ought to be taken in the construction of latrines. Partitions of some sort ought to be placed between each bucket and a special man ought to be detached to keep the place absolutely clean. A little expense would obviate these difficulties.

2. *Thorough and Rapid Disposal of Horse Dung and Refuse.*

Since flies breed in faeces, horse dung, and refuse, these should be cleared away daily and preferably burnt in a powerful incinerator.

3. *Separation of Camps from Native Quarters and Horse Lines.*

Camps ought to be pitched at a considerable distance (one mile, if possible) from native villages or dwellings, or else it will be necessary to exercise a thorough sanitary control over the latter. This will be found a very difficult matter, since having no sewage system they are littered with highly infective faeces and dung, and flies abound.

Permanent dwelling camps should also be stationed at a considerable distance from horse lines (if possible, 1,000 yards) since horses always attract flies.

4. *Careful Guard of all Water Supplies.*

Contamination of water supplies by faecal matter and filth must be avoided, since the cysts of the pathogenic amoebae can live in water for a long time.

5. *Fly-screening and Destruction of Flies.*

All more or less permanent messes, canteens, and cookhouses ought without delay to be thoroughly fly-screened

before the hot weather brings the flies. The doors should close automatically by means of powerful springs. The ideal state of affairs is to have a passage 10 ft. long with a spring door at each end. This passage serves both as the entrance and exit. This system is adopted in the American houses and hospitals all over the Panama Canal zone, and a special gang of carpenters was sent round periodically to examine the condition of the screening and make any necessary repairs. The extra expense has well repaid the authorities by practically stamping out dysentery amongst the white population. As a second line of defence, even in a fly-screened building, all food on the tables ought to be covered with gauze. This is easily done. All flies which gain an entrance to the building should be immediately destroyed.

6. *Supply of Sterile Sand for Cleaning Mess Tins.*
This is necessary, as the sand about a camp is very liable to be contaminated and infective. Sand is easily sterilized by roasting or boiling it with water. The sterilized material should be kept in a covered boiler or other metal receptacle.

7. *Eating and Drinking in Native Quarters.*
Uncooked food, such as salads, vegetables, and ices, also unboiled water and milk, are dangers in all native eastern villages or in the filthy quarters of the larger towns. The milk should always be boiled. As vegetables are often manured with human faeces, they should be thoroughly washed and plunged for a few seconds into boiling water before they are eaten.

8. *Recommendations with regard to Hospitals.*
Cases of amoebic dysentery should be isolated as much as possible in special wards. Fouled clothing and bed sheets should be placed immediately in antiseptic lotion, so as to prevent flies from alighting on them. The hands must be washed after handling such clothing or the patients themselves, and also after handling bedpans. When bedpans are sent to the laboratory, the report paper should not be secured between the bedpan and its lid, because in this way it becomes soiled. Orderlies must be instructed in these matters and thereafter punished for lack of attention to details. Dysenteric wards should be thoroughly fly-screened, as well as the hospital cook-houses and mess-rooms. In addition, flies should be destroyed in all hospitals by every available device.

9. *Early Thorough Emetine Treatment.*
All cases of suspected dysentery should receive at once 1 grain of emetine daily at the advanced dressing station, field ambulance, hospital ship, or base hospital. This treatment must not be stopped during the transit towards the base until at least 7 grains have been given. It is bad practice to omit one single dose. The 7 grains should be received in seven days.

10. *Microscopic Examination of Faeces before Discharge.*
The faeces of every case of amoebic dysentery should be examined microscopically after a full course of emetine in order to determine that they are free from cysts. Patients should not be discharged from a field ambulance for duty, or from any hospital, until they are pronounced free. It should be remembered that the mildest cases may become dangerous cyst carriers.

11. *Isolation and Thorough Treatment of Cyst Carriers.*
All cyst carriers must be sent to hospital to receive a thorough course of emetine combined with salines. They must not be discharged or allowed to join their unit until quite free from cysts.

12. *Examination of all Cooks and Mess-room Orderlies.*
No soldier should be employed as a cook or mess-room orderly in a camp or hospital until it has been proved by microscopic examination that he is not a cyst carrier. Particular attention should be paid to this matter where those so employed happen to be natives.

13. *Larger Sanitary Staff and Equipment.*
There can be no doubt that these sanitary measures are necessary in a country like Egypt. If larger sanitary squads and equipment could be provided, the measures could be thoroughly carried out, and this disease, with others, would rapidly disappear from our army. The extra expense necessary would be repaid almost immediately, and ultimately save an enormous amount of money and life to the State.

THE CAUSATION AND CURE OF CERTAIN FORMS OF LUNACY.

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Before going on foreign service for a second year, I wish to publish the following preliminary conclusions and summary of work directed to the causation and cure of lunacy carried on during the last seven years. The work is a continuation of that previously published on the thyroid gland in the elucidation of goitre and exophthalmic goitre.

The work consists of the microscopical examination of sections taken from the pineal, pituitary, thyroid and sexual glands—first, at different ages and periods of life such as puberty, menopause, and childbirth; secondly, the effect induced in these glands by the acute and chronic toxaemias; and thirdly, the changes found in cases of lunacy.

Clinical examinations were carried out of cases exhibiting signs of enlargement and atrophy of these glands and symptoms of excess or diminution of secretion. Similar examinations have been made on all classes of lunacy for the presence of signs and symptoms. Photographs and *x*-ray examinations have been made to illustrate their occurrence. Mental cases and others have been examined for the presence of toxaemias inducing the alteration in the glands and the consequent induction of symptoms of excess and deficiency. Bacteriological examinations have been made of the faeces of lunatics and the colons examined *post mortem*.

From some 3,000 sections it is found that these glands vary at different ages and periods of life; with advance of life they tend to atrophy.

It is found that the pineal reacts to certain toxaemias, the ultimate result of which is fibrosis. The pituitary reacts in a similar manner, the terminal result of which is fibrosis; intermediate stages of hyperactivity are seen, and the formation of cysts and adenomata. The reaction of the thyroid to certain toxaemias with the induction of hypertrophy, cysts, and adenomata, I have already described in my lectures as Hunterian Professor in 1915. A comparison was made of such specimens with those obtained from cases of lunacy, apart from those in which a definite pathology has already been proved, such as general paralysis of the insane (other syphilis cases), meningitis, head injuries, etc. The effect of age and of the lethal toxaemias was discounted and the state of the glands in cases of lunacy determined.

In primary and secondary amentia atrophy of the pineal, pituitary, and thyroid were found in three main groups of cases. In dementia praecox an alteration was found in the glands which varied with the duration of the case. Alteration and degeneration was also found in other cases of dementia. In some cases of acute confusional mania, melancholia, manic-depressive and other forms of insanity, changes were found in the thyroid, pituitary, and sexual glands. The changes varied from hypertrophy to atrophy.

Clinical examinations were made of some 1,000 cases of insanity, analogous to those from which the pathological sections had been prepared, for signs of enlargement or atrophy, and the presence of excess or deficiency of secretion from these glands.

The thyroid gland was frequently found to be abnormal in children, adolescent and adult lunatics; its size varied from considerable enlargement to complete atrophy, and the general condition from one of hyperthyroidism and exophthalmic goitre to myxoedema and cretinism.

The pituitary gland was found sometimes to have given rise to symptoms of hyperpituitarism to apituitarism, in idiocy, dementia praecox, and other forms of insanity. Enlargement and atrophy of the pituitary were deduced

from *x*-ray photographs of the sella turcica and clinoid processes.

Signs of alteration in the pineal were found, especially in children and adolescents, with consequent symptoms of hyperpinealism and apinealism.

Alteration was found in the sizes of the testicles associated with ductless gland changes. Testicular atrophy was well seen in cases of apituitarism. From the histories of cases it was deduced that the stimulation of the sexual organs or its sudden cessation was associated with altered mentality varying from mania to exhaustion psychosis; altered mentality was also found in cases of double castration. Hypertrophy of the prostate was often found to be associated with altered mentality, and after complete removal cases were frequently associated with depression or melancholia.

Some 200 cases were examined for obvious signs of chronic toxaemia. Pyorrhoea and carious teeth were found to be a frequent accompaniment of lunacy in adults; in certain cases signs of chronic intestinal stasis and toxaemia were well marked.

Bacteriological examination of the faeces was made in some 100 cases for simple aërobic infections (apart from cases of asylum dysentery). Streptococci were found up to 100 per cent., and *Bacillus coli* was totally absent in some cases of mania. Streptococci were also found from vaginal swabs of puerperal mania.

Colons have been examined *post mortem*, and found to exhibit changes varying from normal to pericolitis, fibrous thickening of the walls of the gut, and atrophy of the mucous membrane, and in other cases dysenteric ulceration.

It is deduced that many cases of lunacy may be classified according to the toxaemia present and the change that it has induced in the ductless glands.

The effect of the toxaemia varies with the intensity, duration, and the age of the patient; the first effect is stimulation, the final fibrosis. In the fetus and in childhood an acute or chronic toxaemia may induce atrophy of a ductless gland, and consequent maldevelopment and idiocy. Three groups stand out when the pituitary, pineal, or thyroid is atrophied. Cases of dementia praecox exhibit a polyglandular syndrome, and different gland types are to be found, and the appearance of the cases varies whether the gland is hypertrophic or atrophic.

In adults certain toxaemias react on these glands, especially the thyroid and pituitary, and induce stimulation, hypertrophy, and, finally, atrophy. The alteration in the amount of secretion—whether excess, deficiency, or absence—induces an altered mental state, and this, combined with the effect of the toxaemia, renders the patient insane or liable to insanity from slight mental stress.

Alteration in the sexual glands, whether primary or secondary, leads to altered mentality up to insanity.

The lines on which beneficial treatment may be carried out based on the above pathology become obvious; the matter may be summed up by saying that toxaemias, if present, should be removed by medicinal or surgical measures, and the glands allowed to involute if they are hypertrophied, or, if they are degenerated with deficient secretions, these secretions should be supplied. Good results may be expected before cortical brain lesions have taken place.

Careful experimental treatment with control cases is at present being carried out for me at Bethlem Royal Hospital by Dr. Phillips, commencing with the simpler medicinal treatment.

In a work of this nature due credit must be given to those who have so kindly given me pathological material and access to clinical cases. Full acknowledgement will be made when the work is published in detail. Dr. Braxton Hicks has supervised the collection of pathological material during the last year.

M. ÉTIENNE LAMY, perpetual secretary of the Académie Française, has given £20,000 to that body for the foundation of a prize to be applied for the benefit of large families in need of assistance.

JEFFERSON MEDICAL COLLEGE, Philadelphia, was founded in 1826. It has been a chartered university since 1838 and has graduated 13,278 doctors of medicine, of whom 4,678 are in active practice. Efforts are now being made to secure an additional sum of £400,000 for its permanent endowment.

THE TREATMENT OF BACKWARD DISPLACEMENTS OF THE UTERUS.*

BY

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Introduction.

DISCIPLES of the healing art are not infrequently taunted by the laity because their treatment of common ailments is far from satisfactory.

That this is true to a certain extent cannot be gainsaid, for what is of common and everyday occurrence seems not to stimulate the ardour of the scientific investigator, who looks further afield to discover amidst the rarer morbid processes some fruitful source of inquiry. There is a tendency, too, in clinical work, to spend more time and thought over what are termed "interesting cases," and to treat common ailments on a routine plan. Yet such ailments are all-important to the patients, the more so because of their frequent occurrence.

Backward displacement of the uterus is a common ailment which, from its frequency and importance, demands the closest investigation and study in order to decide what measures of relief may be afforded to the unfortunate sufferer.

Happily the treatment has markedly improved in recent years, owing largely to the advances made in gynaecological surgery and to a better understanding of the causation and sequelae, so that women can now be promised a restoration to health which was not attainable in former years.

When a backward displacement is discovered, it is necessary to determine the cause, for this often affords important guidance to correct treatment.

Congenital Displacement.

The displacement may be congenital, for it has been discovered in the newly born.

I have found undersized retroflexed uteri not infrequently amongst Polish Jewesses of the hospital class, who seek treatment for sterility, and in whom there were no symptoms pointing to any uterine trouble. The association of under-development of the uterus, anteflexion, dysmenorrhoea, and sterility is well known, but I have rarely found small-sized retroflexed uteri amongst British women. Such examples represent the true congenital backward displacement, and, although fully developed uteri displaced backwards may be found in young girls, it is more than probable that the displacement is acquired. In another type met with in the newly born the cervix is much elongated, the uterine body small, and the organ is retroverted; and in yet another type the uterus is retroverted and anteflexed. Needless to say, unless symptoms result no treatment is indicated.

Excessive Uterine Mobility.

Again, excessive mobility of the uterus may be encountered, so that it may at one examination be found displaced backwards and at another occupying an anterior position.

Traumatic Displacement.

The part played by traumatism in the production of backward displacement has been variously estimated from time to time, but from a close study of this subject I have come to the conclusion that in the causation of backward displacements in virgins and nulliparae, and in parous women too, the possibility of traumatism as an etiological factor must constantly be borne in mind.

I have seen backward displacement of the uterus result from accidents in the hunting field, falls on the buttocks, strenuous exercises at school, and recently after strenuous "war work." When the extreme mobility of the normal uterus is remembered it is indeed surprising that this accident does not happen more frequently. Yet it is stated to be very rare, and has even escaped mention by many writers.

The acute displacement is an example of a true intraperitoneal hernia in which the body of the uterus becomes incarcerated in the pouch of Douglas.

* A paper read before the Harveian Society.

The symptoms suggesting the possibility of an acute traumatic backward displacement may be thus briefly summarized: Pain is referred to the lower sacral region and coccyx. If the woman attempt to stand there is slight nausea and vague distress in the epigastrium. Pain is often localized over the sacro-iliac synchondrosis or down the sciatic nerve. Defaecation may be painful, and headache, generally occipital in type, may be a prominent symptom. Added to these there may be distressing vesical irritability, whilst the menstrual type becomes altered. Uterine haemorrhage may follow the accident or menstruation becomes painful, prolonged, and too frequent. Amenorrhoea has been noted. If treated promptly, there is no change in the menstruation. There is a characteristic posture and gait like traumatic lumbago. The shoulders are stooped forwards, the head carried slightly forwards, the dorsal and lumbar portions of the spinal column being held in a position of slight kyphosis.

The treatment consists in replacing the uterus under anaesthesia, followed by rest in bed for at least a fortnight.

The majority of backward displacements in virgins and nulliparae are, however, encountered in what may be termed the chronic stage.

Treatment of Backward Displacements in Virgins.

When symptoms suggesting some pelvic disorder are met with in a virgin a recto-abdominal examination, preferably under anaesthesia, should be made. If a backward displacement be discovered, it is necessary to determine whether the displacement alone is the cause of the symptoms. A careful abdominal examination should be made to make sure that there is no visceral ptosis (stomach, intestine, or kidney), at the same time noting the condition of the abdominal wall and the general muscular development.

If the woman be of the thin neurotic type, exhibiting various so-called reflex nervous phenomena, pains of various kinds, fatigue after slight exertion, gastric troubles, and constipation with feeble muscular development and visceral ptosis, the uterine trouble is only a small part of her disease, and treatment by pessary or operation would do little good

For such women local treatment should be avoided, and massage, exercises, fresh air, and appropriate employment will be most helpful. For those in whom the displacement is not associated with visceral ptosis I believe surgical treatment affords the greatest relief.

It is often urged that the woman should be told to forget about her displacement, or if it is not causing marked symptoms it should be left alone, or if discovered accidentally the knowledge should be withheld from her, or, again, she may be told she is neurotic and fanciful, when her sufferings are very real.

Much depends on the attitude the medical attendant adopts when confronted with disorders of this kind. That a backward displacement of the uterus has a profound influence on a woman's health and wellbeing is evident from the extraordinary benefit which follows its cure by operation. And although in my earlier days I approached this subject with a sceptical mind, I am now convinced of the far-reaching effects produced by a backward displacement, and can fully credit the importance given to this subject by our medical forefathers.

Further, it is frequently advised that nothing should be done if symptoms are absent. To this I reply that sooner or later a backward displacement will cause symptoms, and that as a spontaneous cure is not to be expected the sooner the displacement is remedied the better for the patient.

Apart from prevention, the trend of all modern treatment is to apply the remedy in the early stages of disease in order that the malady may be effectually checked. The same principle should therefore be applied in the treatment of backward displacements.

The modern gynaecological surgeon has had the great advantage of being able to inspect the pelvic organs through an abdominal incision, and so obtain a knowledge of living pathology which was denied to his forefathers, who relied solely on clinical or *post-mortem* evidence. From actual inspection on the operating table I have satisfied myself of the frequency with which tubal inflammation accompanies a chronic backward displacement, how the appendages become congested, and adhere to neighbouring bowel or pelvic peritoneum, and how the uterine body becomes enlarged and congested.

It is assumed by some writers that the uterine congestion is due to the body of the uterus being gripped by the peritoneal folds bounding Douglas's pouch. I have paid some attention to this subject by observing the actual conditions when the abdomen was opened. I have seen the uterine body deeply congested, dark purple in colour, on many occasions lying perfectly free from the folds of Douglas, and also uteri whose colour closely resembled the normal being "gripped" by these folds. Moreover, these folds are easily stretched, and the distance between them varies considerably in different individuals, whilst childbearing exerts an important influence.

I believe the uterine congestion is due to the torsion of the broad ligaments tending to retard the venous return, and that where this congestion is only slight in amount the torsion is not so marked, and the circulation better able to accommodate itself to the altered conditions. Needless to say, when the uterus is infected another factor comes into play.

Slow and insidious changes occur in the uterus and appendages which sooner or later will cause symptoms both local and general.

For all these reasons a backward displacement should not be left alone, but should be promptly remedied. In a virgin it is much better to remedy the displacement by an operation than to introduce a pessary. It is surely better for her to have a neat abdominal scar than a torn hymen and a stretched septic vagina.

Treatment of Backward Displacements in Nulliparae.

In the nulliparous married woman the problem is a little different, for should she become pregnant this may lead to the cure of her displacement. Unfortunately, however, although pregnancy may occasionally occur in a uterus displaced backwards, as a rule the displacement hinders conception, and for this reason the woman may present herself for examination.

When an examination is made and a backward displacement is discovered, then the mobility of the uterus should be tested. Can it be replaced into the normal position or is it fixed?

A useful clinical division of backward displacements is into three classes:

1. Those in which the uterus is replaceable without anaesthesia.
2. Those in which the uterus is replaceable with anaesthesia.
3. Those in which the uterus is fixed.

The uterus may be movable to a certain extent without being replaceable in its normal position. Such movement is permitted when the adhesions are not numerous and are filamentous in character. Again, the woman may resent any attempt at moving the uterus, owing to the tenderness of the uterine body or the prolapsed appendages. Such uteri are readily replaced under anaesthesia. If, in addition to tenderness, the adhesions are numerous and strong, the uterus remains fixed even under anaesthesia.

To determine if the uterus be replaceable is the first step in treatment. If replaceable, treatment by pessary may be tried, whilst if the uterus be fixed a pessary will cause pain through pressure on inflamed or sensitive structures.

Method of Replacing the Uterus.

(*a*) *Bimanual Replacement.*—The uterus may be replaced by the internal fingers pressing the fundus upwards and forwards until it is further assisted by the external hand, the internal fingers being then used to press the cervix backwards and upwards.

(*b*) *Replacement by the Aid of a Volsella.* — Where there is difficulty in carrying out bimanual replacement the anterior lip of the cervix should be seized with a volsella and the uterus pulled downwards, and then the cervix pushed upwards and backwards, thus causing the fundus to rotate forwards. As a rule, this alone will suffice, but if there be any difficulty, the finger or fingers may be used in addition to push the fundus forwards.

(*c*) *Replacement by the Uterine Sound.*— The usual method recommended is replacement by means of the uterine sound. With the sound you may infect the uterine

cavity, you may perforate the fundus, or you may produce abortion in a gravid uterus. For all these reasons the sound should be avoided. Nothing can be more reprehensible than the repeated straightening of the uterus by means of the uterine sound, for the risks of infection are very real, and tubal inflammation may follow.

Treatment by Pessary.—Having replaced the uterus, it is maintained in position by a pessary. The capacity of the vagina will have been gauged by the former examination, and a pessary of suitable size should be selected or a cast of the upper portion of the vagina may be taken by means of a thin rubber ring previously immersed in boiling lotion to make it soft, and a pessary of corresponding size can be procured or, if necessary, made. The most suitable variety of pessary is the Hodge or Albert-Smith, made of hard glass or vulcanite. It should be introduced in the antero-posterior diameter of the vulva, the index finger pressing the upper bar backwards and upwards into the posterior fornix. The pessary should be grasped by the vaginal vault, and should not cause pain or discomfort. Before leaving the examination couch the woman should be asked to "bear down," in order to see whether or not the pessary can be pressed out. It is well to request her to report herself in three or four days to ascertain if the pessary is causing any pain or interference with micturition or defaecation. During the wearing of a pessary a daily vaginal douche is necessary, and for this purpose warm saline solution is useful, as it does not interfere with conception. The pessary should be changed every two to three months, when the opportunity may be taken to see if its use may be discontinued or if a smaller or larger size be required.

When asked the question, How long has the pessary to be worn? the answer is, Until the uterus can maintain itself in the normal position. That may be months or years, or it may never maintain itself in the normal position.

Women are often told that they will be cured at the "change of life." This is true when the uterus becomes smaller and the upper portion of the vagina contracts, or when, from an increased deposit of fat, the retentive power of the abdomen is increased. But in parous women with a relaxed vagina and a gaping vulva the condition becomes worse.

I think, therefore, that the prospects of pessary treatment should be put before the patient, and she should be left to decide whether she will endure the inconvenience of wearing a pessary or have surgical treatment.

A vaginal pessary is an unclean thing, requiring constant attention, and as it acts by stretching the vaginal vault it is in reality favouring the condition it is supposed to remedy. As cures by pessary treatment are not numerous, I believe the interests of the patient are best served by advising appropriate surgical treatment. Moreover, the social status is an important factor, for the hard-worked woman has not the time to give the attention and care which treatment by pessary demands.

The uterus may be found tilted slightly backwards in association with a congenital hypertrophic elongation of the cervix, a condition frequently mistaken in practice for uterine prolapse. A supravaginal amputation of the cervix followed by accurate suture cures the condition, and pregnancy has followed this operation. When met with in a virgin the same treatment is employed.

Treatment of Backward Displacement when Pain and Tenderness Exist.

When the body of the uterus is tender and any movement of it is resented, before attempts at replacement are made treatment should be applied. The best is the "ichthyol treatment." For its successful application the patient should rest in bed for a fortnight or three weeks, during which time tampons of glycerine and ichthyol 10 per cent. are inserted into the vagina every other day and a saline douche given once a week, to clear away the excess of ichthyol. Ichthyol vaseline 10 per cent. is rubbed into the flanks, and ichthyol pills 2 to 3 grains given three times daily. It will be found that after this treatment the uterus can be easily replaced and a pessary inserted.

When the uterus is enlarged and there is excessive and irregular menstruation, probably indicating that there is some adenomatous growth *in utero*, the curette should be employed to remove this growth under anaesthesia, and after all discharge has subsided a pessary may be inserted.

It is here that the operation of curetting may be usefully employed, but only if the menstrual loss is markedly increased, as it is an operation the indications for which are very definitely limited, and it is far too frequently done at the present time.

From a series of cases collected by the late Dr. Herman he estimated that in 40 per cent. menstruation was increased, sometimes in quantity, sometimes in frequency, sometimes in both. Occasionally it is diminished. What is frequently noted is a "relative retention" of the menstrual flow, so that it is prolonged as a brownish discharge for two or three days, and in the intervals between menstruation a uterine discharge, mucoid or muco-purulent, comes away in gushes.

All these symptoms disappear when the uterus is kept in position, and no curetting is required. They prove, however, the evil effects which result from a backward displacement.

The wearing of a pessary is only a part of the treatment of women with backward displacements, and general treatment should always be adopted. For this purpose tonics, exercise in the fresh air, graduated exercises, massage, and dieting are most helpful. The appropriate exercises should be written down and carried out by the masseuse under medical supervision.

The somewhat narrow outlook possessed by many of those who attempt to treat these disorders in women has been the means of diverting countless numbers of patients into the hands of various types of unqualified practitioners. Many patients seem to take a delight in informing medical practitioners that they have tried many doctors without obtaining any benefit, and that they have been cured by massage and exercises. It behoves us all to take the hint, and remember that to strengthen the abdominal muscles and to favour the deposition of fat is the best way of increasing the retentive power of the abdomen.

(To be continued.)

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

THE INCUBATION PERIOD OF PARATYPHOID B FEVER.

THE following case is of interest as *Bacillus paratyphosus* B was found in the stools some time before the onset of the disease.

The patient, No. 403, Pte. McK., was admitted on September 23rd, 1915, suffering from "dysentery." A specimen of his stools was sent to the laboratory next morning; amoebae were not found. On plating the stool dysentery bacilli were not found, but *Bacillus paratyphosus* B was isolated.

It was thought that the patient might be convalescing from paratyphoid B fever, so a serum reaction was carried out by the microscopic method with negative results.

Twelve days after admission, on October 5th, his temperature began to rise. A blood culture was made on October 7th, and *Bacillus paratyphosus* B was isolated. On October 25th a serum reaction was again carried out, and agglutination of *Bacillus paratyphosus* B was found in a dilution of 1 in 1,000 by the microscopic method.

This case shows that *Bacillus paratyphosus* B can be present in the intestine at least twelve days before the onset of the fever, and that cases which develop in hospital are not necessarily infected in hospital.

T. J. HALLINAN, Captain R.A.M.C.,
M.B., B.S., D.P.H.
H. E. ROAF, Captain R.A.M.C.(T.),
M.D., D.Sc.

FIELD MARSHAL VON MOLTKE, who died suddenly in the Reichstag on June 18th, was a supporter of Christian Science, of which his cousin, the heir of the conqueror of 1870, is the official head in Germany.

THE 4th London General Hospital has added one more to the number of military hospital magazines. Two numbers have appeared, May and June. Its title is *The Fourth*, and it presents a cheerful countenance.

Reports of Societies.

WAR INJURIES OF THE JAWS.

THE annual meeting of the British Dental Association was held in London in the premises of the Royal Society of Medicine on June 15th–17th. The President, Mr W. H. DOLAMORE, in his opening address, expressed his appreciation of the honour done him by his election as president for the second year in succession, and reviewed the efforts of the association to secure adequate dental treatment for our armed forces. The whole three days of the meeting were devoted to discussing war injuries and gunshot fractures of the jaws. Papers were read by—

Dr. V. H. KAZANJIAN, Harvard Surgical Unit, 20th General Hospital, France: Immediate treatment of gunshot fractures of the jaws.

Dr. O. RUBBRECHT, Belgian Red Cross, Professor of Stomatology, University of Ghent: A new method of treatment of fractures of the jaws.

Mr. G. E. SMITH, Cannes: Permanent bridge work as splints in fractured maxillae.

Mr. J. F. COLYER: Treatment of ununited fracture and malunion.

Captain H. M. HOLT, R.A.M.C.: Diet, massage, and dynamic exercises.

Discussions were opened by Mr. MONTAGU HOPSON, on reduction of misplaced portions of bone by immediate and gradual methods and retention of parts in normal position during the period of union; by Mr. J. E. SPILLER, on restoration of lost parts by prosthetic apparatus; and by Dr. PONT, of Lyons, on restoration of lost portions of the jaw by surgical means.

There were demonstrations on the making of masks for facial wounds, by Lieutenant DERWENT WOOD, A.R.A.; on restoration of soft external tissues by flexible material, by Mr. H. BALDWIN; and on a rapid method of producing special trays in metal for impressions of fractured jaws, by Mr. G. BRUNTON. A good museum of splints and apparatus was on view, which included a very useful extra-oral splint with pad attachments for supporting soft parts and flaps of plastic operations from the outside (V. H. Kazanjian), and specimens of Dr. G. Villain's "directing rods" for use in cases of deviation of the mandible after ununited fracture.

In the course of the discussions the desire for early co-operation between surgeon and dentist was freely stated. Hopeful opinions as to the possibility of bone-grafting were expressed by Dr. PONT, who claimed considerable success in cases of loss of portions of the mandible, but these hopes were not shared by all the speakers.

Considerable divergence of opinion was disclosed as to the treatment of ununited fractures, and especially of cases in which there was limited loss of continuity of the horizontal ramus of the mandible. Mr. COLYER, on the one hand, urged that bony union should be the primary consideration; on the other hand, many, including Dr. VILLAIN and Dr. KAZANJIAN, urged that normal occlusion of the teeth should be the paramount consideration, even at the risk of obtaining only fibrous union. Dr. VILLAIN showed that by means of a "connecting rod," which is fixed in various ways to the remaining teeth, a normal and powerful occlusion could be obtained. Mr. COLYER urged that bony union, even at the cost of loss of normal occlusion, left a permanent solid base independent of later loss of teeth. In cases in which the loss of bone concerned the horizontal ramus of one or other side he demonstrated his method of extracting the teeth, both upper and lower, on the injured side, thus allowing the smaller posterior fragment to be tilted up and brought into actual bony contact with the larger fragment. Union then took place with the larger fragment displaced to the injured side, but this, as Mr. Colyer demonstrated in cases drawn from the Croydon War Hospital, could be remedied by forcible pulling towards the uninjured side and the use of an "interdental splint." Mr. Colyer's method was to stretch at intervals, splinting between whiles, till a good occlusion on the uninjured side was obtained. This he found soon became the permanent position of the jaw. He emphasized the value of extraction of all teeth whose roots reached the line of fracture in cases of ununited fracture.

Dr. RUBBRECHT's innovation in the treatment of fractures of the jaws consists in making separate frame wire splints for each part of the fracture. These splints are fixed by bands to the teeth, the fractured parts brought into position, and the separate parts of the splint soldered together *in situ*.

Captain HOLT read an interesting paper detailing the steps from "fluid" to "full" diet which he had worked out at the Croydon War Hospital. The whole dietary was contained within the limits of the army diet scale, but was nevertheless very varied and well suited to its purpose of educating the injured jaw back to dealing with ordinary food.

Reviews.

PSYCHO-ANALYSIS.

DR. JUNG was formerly a hypnotist; he then became a disciple of Freud; and later he broke away from some of the teaching of his master and has preached a modified doctrine of psycho-analysis, which does not, however, differ materially from that of the Viennese professor. Some of Dr. Jung's writings have now been translated into English and published in a volume of considerable size, entitled *Collected Papers on Analytical Psychology*,[1] edited by Dr. Constance Long. "Analytical Psychology" is not an appropriate title for the book, which deals with very different subjects, from very different points of view, from those treated of in the *Analytical Psychology* of Dr. Stone, which is now become a classic. The book treats, not of analytical psychology in the current and accepted sense of that term, but of psycho-analysis, which is a very different thing. The first ninety-three pages are occupied by a chapter entitled "The Psychology and Pathology of so-called Occult Phenomena," a chapter containing very little psychology, and very little pathology, but a long and detailed exposition of various manifestations of spiritualism, table-turning, automatic writing, and the usual gibberish of the spiritualistic "mediums." Although Dr. Jung makes some little attempt to explain them as pathological phenomena, he does not entertain, or at least he does not discuss, the hypothesis that any of them is due to deliberate imposture; if he has any doubt that the "communications" really emanate from the "spirits" he does not obtrude that doubt. He then explains the procedure of psycho-analysis, and initiates the reader into the mysteries, now becoming familiar, of the Oedipus-complex and the Electra-complex, laying down as an axiom that when a marriage is "crippled" through the neurosis of a wife, "the cause of the unhappiness always lies in a too firm attachment to the parents." No proof of this assertion is given. No evidence in its favour is advanced. No reason for it is assigned. It is stated as a fundamental truth, and apparently as a self-evident truth—an axiom.

The author relates how he discovered by psycho-analysis out of three persons the one who had committed a theft. The process was extremely elaborate, and is illustrated by five tables of reaction-times, percentages, complex indicators, and so forth, tables that it requires an expert to appreciate. The reader, however, is most impressed, not by the tables, but by the naïve admissions of the analyst, that the thief turned out to be "precisely the one most suspected"; that on being examined she "showed marked excitement," which the others did not; that her pulse went up under the ordeal to 120, while the pulses of the others were unaffected; that she "evinced a very 'suspicious,' or I might say almost 'impudent' countenance"; and that the analyst set about adding up the results "with the definite idea of finding in her the guilty one." It would have been strange if in these circumstances he had arrived at any other result, and we may suspect that it could have been just as well achieved without the use of psycho-analysis.

It is in the interpretation of dreams, however, that the real strength of psycho-analysis is displayed and that its greatest value is found. Dream analysis, we are told, is the *real instrument* of psycho-analysis. For instance, a

[1] *Collected Papers on Analytical Psychology.* By C. G. Jung, M.D., LL.D., formerly of the University of Zurich. Authorized translation edited by Dr. Constance E. Long. London: Baillière, Tindall, and Cox. 1916. (Demy 8vo, pp. 410; 14 figures. 12s. 6d. net.)

little boy of 8 years old dreams of a *black snake* which *wants to bite his face*. (Italics in original.) "The infantile attitude here, *it is evident* (italics not in original) is nothing but infantile sexuality." A married man, who was engaged in an intrigue, dreamt of the number 2477. This is very easily explained. The psycho-analyst adds together the dates, in days of the month, on which the births took place of the patient, his mistress, his wife, his mother, and his two children, having previously taken the number of the month on which these events severally took place, and put it sometimes before and sometimes after the day of the month. The 26th of February, for instance, becomes either 262 or 226. The sum of these numbers comes to 2416, which does not agree with the dream number. However, the patient's age is 36 and his mistress's age is 25. Add these, and we get the dream number 2477. Could anything be more convincing? Unfortunately, beyond that "it led to a deeper layer of the dream's meaning," we are not told what it signifies. It may be pointed out to Dr. Jung that the number 2477 may bear a different significance. If we take from this number the number of the year 1915 we get the number 562, and it is exactly 562 years since the Turks conquered Greece, and 562 miles from Zurich to Belgrade. This seems to lead to a much deeper layer of the dream's meaning. The same patient subsequently dreamt of the number 315. The psycho-analysis of this number produces a separation into 3–1–5. This means that the doctor has three children, and just lately there is one in addition, and the patient himself would have five children if all were living. There are several other analyses of dream figures, equally instructive and revealing. Mr. Ignatius Donelly never produced any cryptogram half as convincing. Can any one, after this, fail to agree with Dr. Jung when he says that "psycho-analysis no longer appears to be a mere reduction of the individual to his primitive sexual wishes, but it becomes clear that, if rightly understood, it is a *highly moral task of immense educational value*."

SERUMS AND VACCINES.

THE third edition of the excellent little book on *Serums, Vaccines, and Toxins*,[2] by BOSANQUET and EYRE, has appeared seven years after the second, and shows evidence of compression as well as of bringing up to date. It begins with a full account of immunity and resistance to disease; here the authors follow Ehrlich in calling chemiotherapy by the name "chemotherapy," as though the art were that of therapy by "chemosis," or oedema of the conjunctiva, rather than by "chemeia" or chemistry. Then follow chapters on the preparation and administration of serums and vaccines, and the use of serums and toxins in diagnosis. The rest of the volume is occupied with the employment of serums and vaccines in the various diseases in which they have been found to be most serviceable. The facts are well presented, and the book is well written; on page 23 the structural formula of symmetrical trinitrophenol is given by mistake for that of trinitrobenzene. The book may be warmly commended to the attention of medical students and practitioners who are on the look-out for a simple account of the subject with which it deals.

Applied Immunology,[3] by Drs. THOMAS and IVY, is a rather loosely written work, in which the general practitioner may read about the practical employment of therapy by serums and vaccines. The text deals with laboratory work at least as much as with the treatment of patients. A few references to the very extensive literature of the subjects dealt with are given, mostly from recent American periodicals. The text appears to be of the nature of a compilation, speaking generally, rather than an account based on extensive personal acquaintance with the methods advocated, although a number of charts illustrating cases are introduced. An appendix contains an account of chemiotherapy and the use of salvarsan.

[2] *Serums, Vaccines, and Toxins in Treatment and Diagnosis* By W. C. Bosanquet, M.A., M.D.Oxon, F.R.C.P.Lond., and J. W. H. Eyre, M.D., M.S.Dunelm., F.R.S.Edin. Third edition. London, New York, Toronto, and Melbourne: Cassell and Co., Ltd. 1916. (Cr. 8vo, pp. 464; 17 figures, 2 charts. 9s. net.)

[3] *Applied Immunology: The Practical Application of Sera and Bacterins Prophylactically, Diagnostically and Therapeutically. With an Appendix on Serum Treatment of Hemorrhage, Organotherapy, and Chemotherapy* By B. A. Thomas, A.M., M.D., and R. H. Ivy, M.D., D.D.S. Philadelphia and London: J. B. Lippincott Co. 1915. (Med. 8vo, pp. 370; 68 figures, 5 plates. 16s. net.)

NOTES ON BOOKS.

DR. R. B. FAULKNER of Columbia University has compiled a pamphlet[4] in which he arrays the opinions of medical men and professors of the art of singing who do not believe in the operative removal of enlarged tonsils. Indeed, he goes so far as to conclude that "children with large tonsils are always large, well grown, and healthy." He appears to regard enlargement of the tonsils as due to misuse of the voice in some cases. He holds that the condition can be cured, and should be cured, if cure is required, by medical treatment. Medical men in Great Britain see very large numbers of cases of tonsillar enlargement, and have a wide experience of the benefits that result from the removal of enlarged or diseased tonsils in many cases. It is doubtful whether they will find themselves in agreement with all Dr. Faulkner's conclusions.

DR. E. M. MAGILL'S *Notes on Galvanism and Faradism*[5] is a little textbook intended for the use of masseuses preparing for examinations in medical electricity now held by the Incorporated Society of Trained Masseuses. It is divided into three parts, defined as "galvanism" (in which static electricity is included), "faradism," and "currents from the main." It is clearly written, but the authoress is not rarely astray in her statements of fact. Thus it is incorrect to define static electricity as "electricity at rest" (p. 16). To say that the common electrical units "have been chosen arbitrarily by electricians" is to ignore the scientific basis of the whole C. G. S. system of units (p. 37). The ohm is not the measure of the resistance of a given column of mercury "1 millimetre in cross section" (p. 38). Treatment by diathermy appears not to receive any notice. In Fig. 21 on p. 54 the cells in use are wrongly numbered. Much of the text is excellent, and the book would seem to be well designed for the purposes for which it is intended.

[4] *The Tonsil and Its Uses: Vocal, Mechanic, and Physiologic.* By R. B. Faulkner, M.D., Columbia University. Pittsburgh, Pa.: The Blanchard Co. 1916. (Cr. 8vo, pp. 29. 1 dol.)

[5] *Notes on Galvanism and Faradism.* By E. M. Magill, M.B., B.S.Lond., D.P.H., R.C.S.I.(Hons.). London: H. K. Lewis and Co., Limited. 1916. (Cr. 8vo, pp. 236; 67 figures. 4s. 6d. net.)

THE MEDICAL INSURANCE AGENCY.

THE Committee of the Medical Insurance Agency, at its meeting on June 15th, was able to allot further substantial sums to medical charities: to the Royal Medical Benevolent Fund, £150; to the Royal Medical Benevolent Fund Guild, £100; to the Epsom College Benevolent Fund, £100; to the Royal Army Medical Corps Officers Benevolent Fund, £25; and to the *Lancet* Editor's Fund, £25.

Before proceeding to this part of the business, the chairman, Dr. G. E. Haslip, presented the balance sheet for the year ending December 31st, 1915, audited by Messrs. Price, Waterhouse, and Co., and reviewed the work of the Agency during that year. In spite of adverse circumstances due to the war the business of the Agency had expanded, and it had earned in commission £1,950, as against £1,816 in the previous year. Out of this sum £838 had been returned to those insured through the Agency, representing a direct saving to them. After paying working expenses the sum of £725 remained over for medical benevolence. Of this amount £630, or just double that distributed in the previous year, was allotted to various medical charities, and £95 was carried forward to be dealt with in the current year. The serious problem which medical men liable to military service had to face owing to the fact that most life offices either declined the risk outright or required such a heavy additional premium as to make the business prohibitive for most men, was taken up early by the Agency. It succeeded in arranging with an office of high standing to accept assurances at more reasonable rates, and the terms have proved acceptable to many medical men who might otherwise have had to take up military service without being able to provide against the contingency of death. The motor business was good during the year, and there was, in fact, an expansion under each head of insurance, while the working expenses were lower than in the previous year. Summarizing the work of the Agency since its initiation, Dr. Haslip said that it had been able to return as a direct benefit to those insured through it £4,530, representing a real saving to the medical profession, and the Agency had distributed £1,700 to medical charities down to the end

of 1915. With the amounts allotted at the meeting on June 15th, the total distributed to medical charities from the first amounted to £2,100. The Chairman concluded by recommending the Committee, in accordance with precedent, at once to make the interim grants mentioned in the opening of this article from moneys accumulating in the Medical Benevolence Account since the beginning of the year, and this was done.

The amounts allotted during 1914 and 1915 and for the first six months of this year are shown in the following table:

Grants.	1914.	1915.	1916, First Six Months.
	£ s. d.	£ s. d.	£ s. d.
Royal Medical Benevolent Fund ...	105 0 0	230 0 0	150 0 0
Royal Medical Benevolent Fund Guild	52 10 0	160 0 0	100 0 0
Epsom College Benevolent Fund...	78 15 0	145 0 0	100 0 0
Royal Army Medical Corps Officers Benevolent Fund	—	50 0 0	25 0 0
Royal Medical Benevolent Fund Society of Ireland	26 5 0	30 0 0	—
Royal St. Anne's School	10 10 0	15 15 0	—
Lancet Editors' Fund	15 15 0	—	25 0 0
Belgian Doctors' and Pharmacists' Relief Fund	26 5 0	—	—
Total	£315 0 0	£630 15 0	£400 0 0

This result cannot but be satisfactory to all those medical men who have insured through the Agency; not only has there been a considerable saving in their own expenditure, but it has been possible to make substantial contributions to medical charities without making any call upon the finances of the profession itself. We believe that the advantages and aims of the Agency have only to become more widely known in order that the financial assistance it will be in a position to give to medical charities in future years shall be even more substantial. The success of the Agency is very encouraging, and reflects the greatest credit upon the chairmen. The first chairman was the late Dr. Radcliffe Crocker, and on his death the office was accepted by Dr. G. E. Haslip, who has taken the greatest possible interest in the work, as has the Agent and Secretary, Mr. Guy Elliston, from whom particulars of the policies—life, accident, motor-car, and others arranged to meet various needs—can be obtained on application to the Agency, at 429, Strand. The Committee has lost by the regretted death of Sir Frederic Hewitt, a member nominated by the *Lancet*, who always showed deep interest in its work and greatly assisted in making it better known. The vacancy thus caused will be filled at a subsequent meeting of the Committee.

"NEURONE" OR "NEURON."

By W. M. Bayliss, F.R.S.,

Professor of General Physiology, University College, London.

I may perhaps be permitted to make a few further remarks on this question, since it appears from various representations made to me that an agreement on the spelling of the name is desirable.

It is stated by Barker in his *Nervous System* that the Greek word from which Waldeyer derived the name which he suggested for the nerve cell, including all its processes, is "*νευρών*." If this be accepted, it is clear that, in order to make the *o* long, it must be spelled in English with a final *e*, just as, in fact, it was spelled in French from the first. But, on referring to the course of lectures given by Waldeyer in 1891 (published in the *Deut. med. Woch.*, *17*), in which it is generally stated that the name was originally suggested, I have been unable to find any mention of the Greek word from which it was formed. Indeed, no use is made of the new name until the summary in the last lecture (p. 1352), where it appears in brackets in the plural form, "Neuronen," as an alternative name for "Nerven-einheiten." It is possible that the derivation may be given in some other publication, but I have been unable to trace it. Further, as Professor Sherrington has pointed out to me, the word *νευρών* is not to be found in classical Greek; we have *νεῦρον* or *νευρά*. It must therefore be a coined word. Professor Barker refers to the opinion of a Greek scholar that it would be justifiable on the analogy of *παρθενών*, the part of the house set apart for the young women. Thus it may be taken as suggesting something on a higher scale, or greater degree of complexity, than would *νεῦρον*, itself an appropriate name for the axis-cylinder process, which forms the unit element of the nerve trunk. It may be remembered that Sir Edward Schäfer proposed this use, although it has not met with general recognition. Notwithstanding the somewhat doubtful etymology, it seems preferable on the whole to adopt the spelling "neurone," partly in remembrance of the proposer, partly because this is the spelling used by the greater number of English-speaking neurologists, and also because it serves to convey the suggestion of a compound unit built up of constituent parts.

However much we may regret, with Sir Edward Schäfer, that it has been found necessary to have a special name for the nerve cell merely on account of the confusion caused by its happening to possess a particularly long process, the word "neurone" cannot now be displaced. It must be admitted, nevertheless, that the suggestion is apt to be conveyed to the student that the degeneration of a nerve fibre is a totally different process from that which occurs in a part of any cell when separated from the nucleus.

As to the names for the constituent part of the neurone, it is unfortunate that the Greek *ἄξων* has the *o* long. If we take the point of view put forward above, it is certainly preferable to use the form "axon" for the axis-cylinder process. This, indeed, appears to be the usual custom. It may reasonably be held that the precise etymological form of a word should not militate against a spelling which is of more scientific value. The distinction between "axon" and "neurone" in respect of the final *e* serves to convey a physiological fact. It may be said also that *ἄξον* is the root. Similarly, "dendron" is the best form for the other processes, while "dendrites" may be used for the finest ramifications, as is, in fact, done by Dr. Mott. No satisfactory name has yet been suggested for the body of the cell containing the nucleus. Waldeyer himself speaks of it as the "nerve cell." But this is clearly misleading. Indeed, it seems almost impossible to avoid the conclusion that the use of "nerve cell" will have to be discontinued altogether. "Cell body" is sometimes used for the part surrounding and including the nucleus, although a name which implies the presence of the nucleus would be preferable. "Peri-karyon" has been suggested, but it seems to exclude the nucleus itself, and is rather clumsy. Would "karyon" serve? I think it need not be supposed to refer to the nucleus alone since we have another name for that, but doubtless a better word may be found.

I would, then, venture to suggest that we should agree to use "neurone" for the whole nerve cell, "axon" and "dendron" for the parts. This, indeed, conforms to the practice of Dr. Mott and others; it also has the approval of Sir Edward Schäfer. "Neuron," as liable to ambiguity, should be dropped altogether.

ROYAL MEDICAL BENEVOLENT FUND.

At the last meeting of the committee, held on Tuesday, June 6th, eighteen cases were considered and £190 was voted to seventeen of the applicants. The following is a summary of the cases relieved:

Widow, aged 40, of L.R.C.P.Edin. who practised at Cliffoney, co. Sligo, and died in 1912. After her husband's death applicant opened a sweet shop in Scotland, and managed to get on until she had to undergo an operation in May, 1915. The Fund then made her a grant of £10. In April, 1916, her shop was blown up by a bomb from a Zeppelin, and all her stock and furniture destroyed, and she was not insured. Now wants help to re-establish herself. Voted £15.

Widow, aged 45, of L.R.C.P.Edin. who practised in the East End of London and died in December, 1915. Applicant is partially paralysed, and was left practically unprovided for at her husband's death, and has had to live on the small sum the practice realized, of which only about £70 is left. Has one son, aged 6 years. Has no home, and is staying with relatives who have promised to give all they can, which only amounts to £13 per year. Voted £10 in two instalments.

(*To be continued.*)

British Medical Journal.

SATURDAY, JUNE 24TH, 1916.

A SLOVENLY SCHEME.

MEASURES are being taken for the formation of an Auxiliary R.A.M.C. Benevolent Fund to embrace the three Auxiliary branches of the corps—namely, the Special Reserve, the Territorials, and those holding temporary commissions in the R.A.M.C. A Provisional Committee has already met, and has formulated a scheme for two funds—one a benevolent fund for officers' orphans, the other a relief fund for the widows and orphans of the rank and file of the auxiliary R.A.M.C. forces. With the latter we do not propose to deal, beyond suggesting that the officers of the Auxiliary branches are unlikely to be possessed of a superfluity of this world's goods, so that, on the principle that each group or class of individuals should concentrate its efforts, as far as possible, on relieving the necessitous in its own group or class, it might be well that the attention of medical officers should be directed principally to the benevolent fund scheme, with any extensions that may seem desirable. Such extension is already contemplated by the Provisional Committee, which has resolved to recommend the general meeting to be held at the Royal Army Medical College, Grosvenor Road, London, S.W., at 2.45 p.m. on Monday next (June 26th) to appoint "a committee to report to a further meeting on the possibility of the establishment of a loan fund to help medical officers of the auxiliary forces who are in temporary difficulties on returning to their civil practices."

It is proposed that the Auxiliary Officers' Benevolent Fund should be run on the lines of the R.A.M.C. Officers' Benevolent Society as far as they are applicable. The scheme proposes that the Fund should apply only to orphans in necessitous circumstances, and should be especially concerned to assist in their education and starting in life. Only the orphans of such officers as subscribe should be entitled to benefit. A minimum subscription of one guinea a year is suggested, which would entitle the subscriber to vote at the annual meetings. Various recommendations are made with regard to the distribution of grants.

The proposal to establish a fund for the benefit of the orphans of officers of the Auxiliary Branch of the R.A.M.C. will, we do not doubt, be most sympathetically received, but the scheme drawn up by the Provisional Committee does not meet the situation. It is cramped and lacking in imagination. It has been perhaps too hastily prepared, and has sought to go into details, such as for instance the provision of a "marriage outfit," before general principles were considered. It demands no great effort of the faculty of imagination to conceive the case of a man who, though he survives, is disabled by wounds or disease. It is quite true that he will be entitled to a pension from the State, but so small that he will be hard put to it to find housing and food, and will be in no position to provide for "the education and the starting in life" of his children. The framers of the scheme seem quite to have forgotten him, and he may ask himself bitterly whether he were not better dead. There can be no hesitation in agreeing that the fund proposed for orphans is urgently needed, since the auxiliary officer R.A.M.C. who is killed or dies on active service, leaving a widow and orphans, will usually be a man so recently started in practice that he will have been unable to make sufficient provision for the education of his children, or the maintenance of his family. His widow may not be equal to earning a sufficient livelihood; and the medical charities in existence do not offer unlimited assistance. Epsom College is valuable—to the extent of its vacancies. The Royal Medical Benevolent Fund makes grants—often to the extent of £12 a year. The Society for the Relief of Widows and Orphans of Medical Men is only open to subscribers, who must reside or have resided within twenty miles of Charing Cross. The Professional Classes War Relief has many calls from other professions.

We confidently submit that before drawing up rules for the Benevolent Branch and entering into such details as we have mentioned, the Committee ought to have settled matters of principle. Who are the persons to be benefited by the Benevolent Branch? Is there need for a loan fund, and what should be its purpose? To whom is the appeal for donations to be made? And what is to be the relation of the administration of the fund, or funds, to other funds? We hope that the promoters will study carefully how they may extend the usefulness of the proposed fund or funds to the fullest possible extent, and will not at the outset tie their own hands by a narrow scheme and narrow references.

Upon the first matter of principle we have already touched. We are confident that a scheme for orphans only will not appeal so strongly to the profession at large as would a wider scheme.

The second matter of principle is as to the need and purpose of a loan fund. The recommendation which the Provisional Committee is making to the general meeting shows a laudable desire to widen the original terms of reference, but we venture to say that this matter should be settled before any general appeal is made. There is a Government scheme for meeting cases of hardship arising out of civil liabilities applicable to all who joined the ranks since August 4th, 1914, or may hereafter join, and to single as well as to married men. It is not contemplated that the assistance granted in any individual case shall exceed £104 a year. The items in respect of which assistance will be granted are rent (including ground rent and rent of business premises), mortgage interest, payments in instalments in virtue of contracts such as purchase of premises, business, or furniture, taxes, rates, insurance premiums, and school fees. The scheme, however, does not apply to officers. Yet there must be many cases among medical officers of the Auxiliary R.A.M.C. in which the need for similar temporary assistance must be very urgent. To meet these cases a loan fund, if it can be formed, would be of the greatest value. But the limitation of such a fund to helping medical officers who are in temporary difficulties "on returning" to their civil practices seems unwise. Surely many cases of hardship must occur when the practitioner is going on service and while he is away. In considering the question of a loan fund, the endeavour should be to relieve the anxieties of an auxiliary officer from the moment that he is called up.

The next matter of principle which needs to be settled is as to the people to whom the appeal should be made. From the wording of the scheme it would appear that it is founded upon the rules of the Regular R.A.M.C. Officers' Benevolent Society, but

it seems to us to need no argument to prove that rules applicable to the regular service into which a man enters as a life's career cannot be transferred to civil practitioners temporarily in military employ without root and branch modifications. This point is, we think, clearly shown by the recommendation of the Provisional Committee that orphans of officers who are not subscribers to the fund should have no claim on its benefits, and to a further paragraph expressing the hope that every officer of the Auxiliary R.A.M.C. will at once become a subscriber and, if able to do so, give a donation to assist in starting the fund. This is to take far too narrow a view of the situation. Undoubtedly officers now employed should, and, we believe, will, respond, but the appeal ought to be much wider. There are, we believe, in fact we know, many members of the profession debarred by age or other circumstances from engaging in military service who feel strongly that there is an obligation upon them to do anything within their means to help their brethren who have joined the Forces of the Crown, by contributing to a benevolent fund or to a loan fund, or to both. In this way they will feel that, after all, they are able to "do their bit."

The final matter of principle is with regard to the relation of the Auxiliary R.A.M.C. funds to other funds already in existence. Care should be taken to avoid overlapping and the closest possible connexion established and maintained with such other funds. This might be attained by inviting representatives of other bodies to sit on the committee of the Auxiliary R.A.M.C. funds. It must be remembered that that committee will have to deal with men drawn almost entirely from civil practice, the large majority of whom will, after the war is over, revert to civil practice.

For these reasons we counsel the general meeting on Monday to make a clean slate, and refer the whole matter to a strong mixed committee containing a large proportion of men acquainted by experience with the special difficulties of Territorial, Special Reserve, and temporary medical officers, especially those who before the war were engaged in general practice, ready to give sympathetic consideration to those difficulties, and competent to interpret the feeling of the civil profession on the subject.

THE INCREASING MORTALITY FROM CANCER.

Two views as to the alleged increase in the annual mortality from cancer are generally held. One of these is entertained by the optimists, and explains away the increase as virtual, not real, and due to improved skill on the part of medical men in diagnosis and the filling up of death certificates. Holders of the other view—largely statisticians and experts—have long been asserting that there is a steady increase year by year both in the relative and the absolute number of persons dying of cancer. The Prudential Insurance Company of America has gone very thoroughly into the question, collecting the most complete and recent statistics bearing on it from all available sources, and has published all its facts, figures, and conclusions in a well-written volume of over eight hundred pages.[1] The main conclusion reached is, briefly, that the actual frequency of malignant disease throughout the civilized world is much more of a menace to mankind than has generally been assumed to be the case.

The general death-rate shows a marked decline; the death-rate from cancer shows an actual and persistent increase in practically all the countries and large cities for which trustworthy data are available. Europe, Asia, Africa, and America are laid under contribution to prove this point, and vast quantities of statistics have been tabulated to illustrate it. Arguments that are apparently sound are brought forward to show that the increase in malignant disease is real, and not the result of improved diagnosis, more scientific classification, or a changed age distribution. Thus, combining the returns for the United Kingdom, Norway, Holland, Prussia, Baden, Switzerland, Austria, the cities of Denmark, the Commonwealth of Australia, and the Dominion of New Zealand, it appears that in 1881 these countries had an aggregate population of 98,380,000, and 44,047 deaths from cancer, equivalent to a rate of 44.8 per 100,000 of population. By 1891 the rate had increased to 59.6, by 1901 to 76.3, and by 1911 to 90.4. Thus during thirty recent years the cancer death-rate in these countries, which—excluding perhaps Prussia—are typical of the civilized portion of the world, has more than doubled. And this in spite of an important factor tending to reduce the death-rate from cancer, namely, the increasing practice of surgical operations for malignant disease; deaths must result to an increasing extent from causes other than cancer in the case of patients with malignant disease successfully operated upon in conformity with modern surgical practice. A further numerical illustration of the increase in the death-rate from cancer is furnished by combining the principal European countries for the period 1896–1900; it is found that the average rate during these five years was 69.1 per 100,000 of population. It was as high as 127.4 in Switzerland, and as low as 30.7 in Hungary. During the five-year period 1901–5 the average rate rose to 74.2, being 128.3 for Switzerland, 39.1 for Hungary. During the five years 1906–10 the average rate was 80.1; in Switzerland it was 125.9, in Hungary it had risen to 43.6. One of the highest recorded death-rates from cancer is that of the cities of Denmark, which stood at 142.1 for the quinquennium 1908–12. Consideration of these and other similar figures with which Mr. Hoffman's book abounds would seem to show that the optimists who seek to prove that there is no general increase in the prevalence of cancer throughout the world, and more particularly in highly civilized countries like our own, will have to reconsider their position.

Numerous interesting problems and side issues of the great cancer question are discussed in the volume. The mortality from cancer in different occupations is considered at full length, with many references to the abundant literature of the subject; cancer is also considered as a problem in life insurance medicine, and its geographical incidence throughout the world is discussed, so far as the imperfect statistical returns of the less civilized countries permit. It appears certain that cancer is exceptionally rare among primitive peoples, such as the North American Indians and the Esquimo population of Labrador and Alaska; though cancer of the cheek is common among chewers of the betel nut in Ceylon, and in Afghanistan malignant disease of the abdominal wall, or kangri cancer,[2] is often met with as the result of wearing a portable fire basket under the clothes for warmth.

Mr. Hoffman enters a strong plea for the importance of collecting cancer statistics on a uniform basis. At the present time cancer hospitals and the various associations interested in the problem of cancer collect their statistics and issue their reports

[1] *The Mortality from Cancer throughout the World.* By F. L. Hoffman, LL.D., F.S.S., F.A.S.A., Statistician the Prudential Insurance Company of America. Newark, New Jersey: The Prudential Press. 1915. (Med. 8vo, pp. 841.)

[2] E. F. Neve: BRITISH MEDICAL JOURNAL, 1910, i, 589.

as each thinks best. The results as reported are, therefore, not comparable one with another, and the figures given, commonly lacking in important particulars, are not as valuable as they easily might be made. There is every reason, therefore, for the general adoption of uniform methods of tabulation and analysis on the part of these institutions and associations; the special form in which the returns should be made is a matter for settlement by general discussion and agreement.

COMPULSION AND ENROLMENT.

COMPULSORY military service comes fully into force in Great Britain on this day, Saturday, June 24th, 1916. We have received several inquiries as to what a medical man of military age should at this moment do in view of this enforcement of all-round compulsion. The answer is, if he be enrolled—Nothing. The answer if he be not enrolled is—Enrol.

The compulsory clauses of the Military Service Acts apply to members of the medical profession under 41 years of age as to those of every other calling, but the most recent Act and the regulations made under it contain special provisions with regard to the tribunal by which their applications for exemption shall be heard and decided.

If a medical man has enrolled he may in the meanwhile possess his soul in peace. For him the procedure is very much simplified. The enrolment scheme evolved by the profession itself is similar to the Derby attestation scheme for the general population, but antedated it, and has, we conceive, been continued under the new Military Service Act for two reasons: first, because the original response of the profession to the first call of the country in 1914 was so good; secondly, because the enrolment scheme attained a respectable measure of success and was sound in principle, inasmuch as it was the only plan by which the medical needs of the military forces of the Crown could be met, while those of the civil population were safeguarded as fully as the great test to which the nation was being put allowed. Voluntary effort produced five million men and over ten thousand medical men. A large army and a large medical service, but an army and a medical service undergoing constant wastage—according to the law of averages; so many men a week in every branch have to be sent home, a large proportion of whom will never be fit to rejoin.

Now compulsion has come, and it applies to medical men of military age as to men of military age in any other calling. The only difference is that medical men have the privilege of applying to a special professional tribunal; their case is to be tried by their peers—a very good old English principle. These tribunals, styled "Central Professional Committees," are now recognized by the Order made by the King in Council under Section 7 of the second Military Service Act, the new Act which applies compulsion to all men of military age whether married or single. The statutory Central Professional Committees in England and Wales are the Central Medical War Committee (429, Strand, London, W.C.), with, for the staffs of hospitals in the County of London and for certain other cases specially referred to it, the Committee of Reference formed by the Royal Colleges in London (Conjoint Board in England, Queen Square, Bloomsbury, London, W.C.). In Scotland the Statutory Committee is the Scottish Medical Service Emergency Committee (Royal College of Physicians, Edinburgh). To the secretaries of these committees any inquiries that may be considered necessary should be addressed. As a matter of fact no inquiry should be necessary. The position, to any one who has read the public newspapers and medical papers, is as plain as a pikestaff. Every person should make himself acquainted with legislation by which he is directly affected; ignorance of the law is no excuse.

A medical man who has enrolled knows exactly what his position is. He has been told that he will receive a month's notice before his services are required. Until he receives this notice he need do nothing. The procedure of the statutory Central Professional Committees, which received official recognition from the Army Council only last week, has not yet been settled, but an enrolled medical man will in practice probably receive rather more than a month's notice. In any case it will not be until he is warned that he need take any action to obtain exemption, should he desire exemption. He should then, and not before, prepare his case and submit it, with any evidence he desires to advance, to the appropriate Professional Committee, which will be bound to hear him and his witnesses if any, should he so elect.

As to the medical man who does not enrol, we do not pretend to say what excursions and alarms may be his lot, but eventually, if he does not want to serve in the ranks, his case will go before the appropriate Professional Committee, where it will be heard and decided.

Nothing hereinbefore stated applies to Ireland, which has contracted out of compulsion. But members of the medical profession in Ireland are free to volunteer for commissions in the R.A.M.C., and we believe that a good many have already done so, though we have not been supplied with figures. It will, however, have been seen that not a few boards of guardians and other local authorities in Ireland have granted leave of absence to their medical officers. Medical men in Ireland willing to offer their services should address themselves to the secretaries of the Irish Medical War Committee, 16, South Frederick Street, Dublin.

COMMISSIONS FOR MEN BETWEEN 45 AND 55.

WE understand that the appeal of the War Office to medical men between 45 and 55 to accept commissions in the R.A.M.C. for whole-time general service in the United Kingdom is urgent, and that it is very strongly hoped that the response may be large and immediate. Those who thus offer themselves for whole-time general service in the United Kingdom will set free to serve with the British armies abroad younger medical officers now employed in this country. The military correspondent of the *Times*, who has often proved himself to be very well informed, published in that paper on June 20th a letter, dated from Northern France, in which he said: "We have continually growing numbers of men and guns and better preparation for our next effort. The stream of troops and of drafts which reaches our front flows ceaselessly, and we receive constant proofs of the admirable efforts made by those who direct our strategy at home towards the building up of a formidable army." After referring to the feat of the French in holding up, all by themselves, for four months, the German enemy on the Meuse, to the extraordinary successes of the Russian Southern armies, to the arrest of the Austrian offensive against Italy, to the resuscitation of the Serbian army, and to the effects of the naval battle off Jutland, as well as to certain evidences of the decline of German man power, he went on to say, "With all these circumstances to our credit the fact remains that the German fighting machine is still intact, and has to be broken down before we can think of peace. This task remains an exceedingly hard one, and not one

man, or gun, or shell can legitimately be spared from its accomplishment. We cannot afford to reduce Germany by starvation alone. She must be beaten in the field, so that the ruling military caste may be convinced, as profoundly as the poor people of Germany appear to be convinced, that the game is up. . . . What we can say with confidence, after reviewing the whole position, is that the conditions are favourable to us, and that it only remains for generalship and hard fighting to take advantage of them." Hard fighting! Field-Marshal French, in ending his tribute to Lord Kitchener in the House of Lords on Tuesday, said that the finest monument the British people could erect to this great man's memory "is to clothe themselves in the spirit of determination and concentration of effort which characterized his public career." The voluntary effort already made by the medical profession has been so splendid that we feel confident that this fresh appeal to men between 45 and 55 will meet with a response at least as good as that given by their juniors. Offers of service—which, we repeat, must be for whole-time service in any part of the United Kingdom to which the officer may be directed to go—may be made to the Secretary of the War Office, Whitehall, London, S.W.

GERMAN TREATMENT OF PRISONERS OF WAR.

A WHITE PAPER recently issued contains correspondence between Sir Edward Grey and Mr. Page, the United States Ambassador, and a *Note Verbale* from the German Government concerning the employment of prisoners of war. From this it appears that 1,950 German combatant prisoners of war have been transferred from internment camps in the United Kingdom to Rouen and Havre, where they are engaged, under British supervision, in clearing cargo ships of goods other than munitions of war. It is added that the treatment of a camp in France is precisely similar to that of one in England. By way of reprisals the German authorities transferred 2,000 British prisoners from camps in Germany to Russia, where it was said they would be put to work under the same conditions as those obtaining in the case of the German prisoners sent to France. Sir Edward Grey arranged for inspections by representatives of the United States Ambassador in Paris of the dépôts in France to which the German prisoners had been sent. He added an expression of his hope that it might be found possible to arrange for an inspection of the British prisoners very shortly after their arrival at their destination, and suggested to Mr. Gerard that it might prove of great advantage if one of the doctors now attached to his staff could be delegated to reside for this purpose at some place in Russian territory under German occupation as long as British prisoners were interned in that territory. One of these places is Windau, a Baltic port, where the prisoners are engaged in railway work. The *Daily Mail* has published some evidence as to their treatment. According to statements by prisoners, they rise at 4 a.m. and work, with short intervals, till 5.30 p.m. Food is scarce, and parcels are not received; water to wash in is not to be obtained. Some of our newspapers speak of this transfer of prisoners as a new step taken by our Government. But it would seem that the Germans began it. The first batch was sent from this country on April 5th. According to the Paris *Journal*, about the end of March some thousands of French prisoners were transferred from the camps of Westphalia, the Grand Duchies of Baden and Saxe-Coburg-Gotha, Münster, and other places, to Russia, Poland, and Courland, by way of reprisals for the sending of a number of German prisoners to Morocco and Dahomey, where, it was alleged, they were ill-treated. *Le Journal* says this allegation is open to the gravest doubt, and the character of German official veracity does not stand so high that such statements can be received without the most cautious reserve. The testimony of the French prisoners as to the way in which they are treated strongly confirms that of the British. They are stationed in places the climate of which is notoriously unhealthy, the conditions being made worse by exceptionally bad weather. They do not receive the letters and parcels which their families send. They are badly housed, badly fed, and are compelled to do work for which they are altogether unfitted. Some are set to work in the marshes in water halfway up the leg, cutting out peat from 6 to 6 in all weathers, or carrying stones to break for the roads. Men repatriated from Germany bear testimony to the brutality of the Germans. They were tied to posts for refusing to do munition work, and punished with twenty-eight days' cells on black bread and water.

PLAN OF NEW PRISON CAMPS IN GERMANY.

THE Germans still profess indifference to the feeling of repulsion excited in other nations by the low ethical standard they have displayed in dealing with the problem created for them by the prisoners they have interned or captured, but there is some evidence that they are becoming awake to the contempt for their powers of organization and administration aroused by the incapacity shown in handling it. A camp at Cottbus for Russian prisoners was visited by a severe epidemic of typhus, as has happened in many other German prison camps. The conditions of the camp must have been very bad, for 500 of the prisoners who survived were set to work to build a new camp in the same neighbourhood to provide accommodation for 10,000 prisoners. It is reported to have been completed last July, and is said to have served as a model on which new prisoners' camps in Germany have subsequently been built. In the early camps barracks were run up in parallel rows, and stood completely above ground. The barracks of the Cottbus type are dug in so that only the upper half of the building is above ground. The barracks are disposed like a fan spread out over a half-circle. It is claimed for this arrangement that the buildings are much warmer than those built wholly above ground, and that their concentric distribution facilitates the supervision of the whole camp from the central observation station. Early in the war one soldier was required to guard every ten prisoners, but with the new plan only one soldier is required for every twenty prisoners.

GRADUATED WORK FOR THE TUBERCULOUS.

WAR teaches many lessons. The physical fitness of the individual for the work that he is called upon to do has been forced into prominence by the "recruiting problem." There is no hard-and-fast line to be drawn between the fit and the unfit. For the latter class there is work to be found, and there is no longer any excuse for a physically strong man to be employed upon work that does not require physical strength if it can be equally well done by a weaker one. Among the large number of adult males who are unfit to face hardships there is always a very considerable proportion who are actual or potential consumptives, and experience is giving abundant proof that the incipient disease, if intelligently handled, is no bar to usefulness within reasonable limits. The tenth annual report of the National Sanatorium Association, which describes the system adopted at the Benenden Sanatorium, affords striking evidence of the extent to which the period of treatment may be turned to good account by the employment of graduated exercise in the form of productive labour, with due observance of the needs of each individual case. While the hours for sleep and for meals are fixed for all patients alike, the time to be devoted to exercise in any form is strictly prescribed for every patient separately. By successive stages a period is reached when productive work can be undertaken, and the steadily increasing development of the land surrounding the main building of the sanatorium gives convincing evidence of the fact that consumptive workmen, if enabled to live a strictly hygienic life, are capable of the best class of productive labour. Among sanatorium

patients there are always a certain number, usually too many, with whom the disease has progressed too far to admit of anything but very easy work. For them special methods have been tried at Benenden, as elsewhere, but neither the numbers treated nor the results achieved are sufficiently striking to warrant any conclusions. The general results do not vary greatly from year to year. A somewhat different form of classification, as suggested by Sir R. W. Philip, has been adopted whereby the amount of systemic disturbance is taken into account in addition to the extent of the local lesions (Turban's system). But the ultimate outcome is much the same and only serves to emphasize the truth of the universally recognized rule that treatment in the earliest stages gives the best chance of success.

SPHAGNUM MOSS AS A SURGICAL DRESSING.

IN a paper published in the BRITISH MEDICAL JOURNAL nearly a year ago (July 24th, 1915), Mr. Charles W. Cathcart, surgeon to the Royal Infirmary, Edinburgh, called attention to the value of sphagnum moss properly dried and prepared. Since then great progress in the organization, collection, and preparation of the moss has been made by the Scottish War Dressings Supply Organization, which has from time to time extended its workroom accommodation in Edinburgh to meet the demand. At present the secretary's office and central workrooms are at 37, Palmerston Place, where information can be obtained; the receiving dépôt and storerooms are at 10, Queensferry Street; the sublimating and compressing workrooms, instituted by Sir John Cowan, are at Messrs. Redpath, Brown and Co.'s workshops in Albion Road; and the packing and dispatching dépôt is at the West Gate, Royal Infirmary. In a communication to the *Scotsman* last week, Mr. Cathcart said that the Director-General, A.M.S., had placed sphagnum moss on the list of materials approved by the War Office for surgical dressings, and that large orders for military hospitals were being received. Four sub-centres have been established at Lerwick, Aberdeen, Oban, and Beattock, from which consignments of moss collected from the surrounding districts are dispatched to Edinburgh, free of charge. Professor I. Bayley Balfour, and the staff of the Royal Botanic Garden, Edinburgh, have given much valuable assistance and advice, and Mr. W. W. Smith, assistant keeper of the garden, has made careful survey of the moorland districts round Edinburgh, and has prepared a report indicating where the best moss grows on the Pentlands, Moorfoot Hills, and Lammermoors, as well as on the Moffat Hills, the Eildons, and Ettrick Forest. Mr. Cathcart added that he had received communications from surgeons of military hospitals stating that the moss had proved a most serviceable dressing. A Lieutenant-Colonel R.A.M.C., writing from Alexandria, said: "It is very absorbent, far more so than cotton-wool, and has a marked deodorizing power." An officer commanding one of the Territorial hospitals in London stated that the moss had been found most valuable and efficient, and other officers in similar positions have borne similar testimony. Mr. Cathcart concludes by making an appeal for a sum of at least £500 to carry on the work for another twelve months, and asks that subscriptions should be sent to the Honorary Treasurer, Mr. A. G. Miller, F.R.C.S., 36, Alva Street, Edinburgh.

THE HEALTH OF THE GERMAN CHILD.

IN the German lay press it has been repeatedly stated that the Allies' blockade has not affected the health of the children in Germany, taken as a whole. This view of a most important matter is not shared by Dr. A. H. Kettner, school medical officer in Charlottenburg, who even last autumn gave a rather gloomy account of the health of the school children in his district. He alleged that within six months of the outbreak of war the adults of the working classes were underfed. This was not at first the case with the children, at any rate with very young children. The action of the Government in subsidizing the suckling mother helped to ensure that children in the first year of life should be as healthy and vigorous as before. Children to the end of the sixth year also seemed to have escaped any serious effects of the war, their parents in many cases having made great sacrifices. Two diseases had, however, increased among children on account of the war. The first was rickets, due, apparently, to poverty in the homes, and tetany or the spasmophil diathesis, which was the result of the excitement of the war reacting on the young pregnant mother. As late as the spring of 1915 Dr. Kettner reported to his school board that the war had left no trace on children of school age. In this impression he was supported by the teachers and superintendents. But when, in June, the yearly weighing and measuring of the scholars took place, the fallacy of his optimistic report in the spring was revealed. The figures compared most unfavourably with those for previous years. Increase both in weight and height had been checked in all the classes from the eighth to the fourteenth year; girls suffered more than boys. Of a class of 33 girls aged on the average 10 years, weighed early in February, 1915, and again five months later, at the beginning of the summer holidays, 27 had lost weight, the loss amounting to as much as 2 kilos in some cases, two were as heavy as before, and the rest had gained weight, the gain in these cases being much below the average gain under the same conditions in time of peace. Various measurements of the children in this class told the same tale of stunted growth.

THE HALF-YEARLY INDEXES FOR 1916.

THE usual half-yearly indexes to the JOURNAL, to the EPITOME, and to the SUPPLEMENT have been prepared and will be printed. They will, however, not be issued with all copies of the JOURNAL. Any member or subscriber who desires to have one or all three of the indexes can obtain a copy of what he wants, post free, by sending a post-card notifying his desire to the Financial Secretary and Business Manager, British Medical Association, 429, Strand, W.C. Such copies will be dispatched shortly after the middle of July.

SIR ALFRED KEOGH, K.C.B., Director-General of Army Medical Services, has been elected an Honorary Freeman of the Society of Apothecaries of London "in recognition of his peculiar services to the State and the medical profession."

Medical Notes in Parliament.

Insurance.

THE first business taken by the House of Commons when it reassembled on June 20th was the votes for National Insurance, but Mr. C. Roberts, Chairman of the Joint Committee of Insurance Commissions, had a very small audience to hear his apologia.

He began by saying that the Insurance Commissions had suffered more depletion of their staffs than older departments because fewer were over military age; 50 per cent. of the 1,424 men in the English Commission had been released for war service either through enlistments or by transference to other departments. The English Commission was now employing 1,331 women. The staffs of approved societies had also been depleted. The war had also prevented the Commissions from dealing administratively with a number of controversial questions. For instance, it had often been suggested in the course of the last twelve months that something ought to be done with respect to sanatorium treatment or with questions connected with the payment of doctors; but when the whole of the medical profession was being mobilized for the needs of the army it was out of the question to attempt to revise or reconsider the terms of the original agreement. Such questions must wait until peace restored normal conditions. The process of consolidating regulations hastily made at the beginning was proceeding, and so far as the English Commission was concerned was now practically complete, but it had been necessary to leave the Medical Benefit Regulations untouched.

Within the course of a few weeks a volume would be published containing the Act, orders, and regulations, and this publication he hoped would help to put the Act upon a proper basis. The chemists of England and Wales had reached an agreement with the Commissioners under which the very bad and unbusiness-like habit of discounting their bills had been abolished and prompt payment in full assured. In Ireland a belated and long overdue system of medical certification had come into force on January 1st. The grants for the Joint Commission—the four Commissions—and for the audit showed a reduction, the figures being £7,700,000 in 1914, £7,195,000 in 1915, £6,300,000 in 1916-17; but it was not easy to compare this year's estimates with last year's. Two main changes had been made in the mode of keeping the accounts. The first was that sums paid to insurance companies for medical and sanatorium benefits and expenses connected therewith had, under the Act of 1911, to be paid at the beginning of the year; since the Act of 1913 payments could be made from time to time, and were, in fact, generally made month by month. Consequently, in the estimates for 1915-16, it was necessary only to provide one quarter's moneys, up to March 31st, 1916, whereas in the estimates for 1916-17 it was necessary to provide for the full financial year. The other main change was that now sums actually issued from time to time to the societies were charged against the vote. On balance, however, there was a substantial reduction in expenditure. The war itself had lessened expenditure; large transfer was going on from the class of employed contributors to the new armies, but this was offset by the new entrants, women and others, coming into employment. The State did not lessen its liability for benefits that would have been paid if the insured person had not gone into the army, except in reference to what he called doctors' half-crowns. There would be fewer half-crowns granted this year, and this was a real saving produced by the war. Further, with the rise in wages, the State would have to pay a lessened contribution on account of low-wage contributors. Under the abnormal conditions produced by the war, with greater opportunities for employment and high wages, the provision made for sickness and maternity benefits was in the case of men 8 per cent. above what was required, taking the average of all societies. On the other hand, though the shortage on the women's side was diminished, it had not been wiped out. This was due partly to the action of the House in 1911 in cutting down the actuaries' estimate. The result of the war on the finances of the Act would depend upon the balancing of forces. On the one hand, there might be benefit from improved physical training to set off against the strain of war service; there would be release of reserves by premature death; there was the opportunity of getting a higher rate of interest, and there was the present low rate of sickness. It was to be feared, however, that at a later stage, some years hence, there might be an upward curve of ill health due to the indirect effects of the war. On the whole, however, he considered that there was no real financial unsoundness which required special precautions to be taken. He hoped that the grant of £135,000 a year, representing the grant-in-aid of excessive sickness of women voted in 1914-15, would be continued, but apart from that it would be idle and unpatriotic to expect any further Government grants in the present condition of national finances. There had been very considerable progress in counties and county boroughs in tackling tuberculosis; with the money made available through the Insurance Act and by means of the Hobhouse grant the country had been covered with a network of hospitals, sanatoriums, and dispensaries, and, by voluntary effort and otherwise, tuberculosis schools and care committees had been set up. The comprehensive schemes of many counties and county boroughs were not yet complete, having been suspended by the war. The latest figures available were those for 1914. The applications for treatment that year increased by 6 per cent., persons treated by 17 per cent., cases treated in residential institutions by 69 per cent., and those treated in dispensaries by 232 per cent. Although full figures were not available, it was known that the percentage of cases treated in dispensaries had largely increased in 1915; the number of persons treated in residential institutions had dropped by a small percentage, but there were vacancies in institutions in different parts of the country. In Scotland there had been no difficulty in finding room for all the tuberculous soldiers reported, and in some of the institutions there were vacancies for the civil population. The number of cases of tuberculous soldiers referred to the Insurance Commissioners was 3,250. Arrangements had been made by means of a special grant to get priority of treatment for tuberculous soldiers, and all the cases reported had been offered treatment in residential institutions. Since the Insurance Act had been in force £2,800,000 had been found for the attack on tuberculosis by means of sanatorium benefit, and in 1916-17 the insurance committees would have from that source an income of £760,000, including a grant of £35,000 for tuberculous soldiers. In 1915 the sum paid to insured persons in respect of sickness benefit was £6,300,000, for maternity benefit £1,300,000, for disablement benefit £840,000, and the Commissioners had got a sum of £28,000,000 invested to meet the anticipated sickness which the present population would have to face ten, twenty, or thirty years hence.

Mr. Currie observed that the statement of Sir Gerald Ryan's Committee, "bankruptcy in the strict sense of the word cannot overtake the scheme," was not a very high compliment, and referred to the very severe strictures made on the administration of the Act by the Public Accounts Committee. Mr. J. Samuel, who also criticized the finances, demanded that the Insurance Commissioners should prepare what insurance companies were bound to prepare every year for the Board of Trade—namely, a statement showing, first, the total income from all sources; secondly, the cost of administration; thirdly, the total amount paid in sickness, maternity, and disablement benefits. Mr. Rutherford contended that a considerable number of the societies were insolvent, and Mr. Booth argued that the expert committee would not have advised a raid on the sinking fund to the amount of £1,800,000 a year if a surplus could really be shown. He had held from the first that the financial provision made in respect of women was insufficient, and experience had proved this opinion to be correct. Mr. Booth also criticized the position with regard to sanatorium treatment, and alleged that the Insurance Commissioners sought to shift the responsibility from the insurance funds to the rates. The Financial Secretary to the Treasury deprecated discussion of the report of Sir Gerald Ryan's Committee; it had made certain recommendations which were now under consideration by the Treasury in consultation with the Insurance Commissioners. Mr. Denniss accused the Commissioners of making use of the fact that owing to tuberculosis now being a notifiable disease the public health authorities were under an obligation to provide hospital accommodation in order to evade their liabilities under the Insurance Act to provide sanatorium treatment. He asked whether it would be possible without legislation to arrange that when a man went into a sanatorium his sick benefit should accumulate. At present the money saved went into the General Purposes Fund, and the man, when he came out from a sanatorium, fell back into ill health because he was not able to earn wages sufficient to provide him with proper food and accommodation. Mr. Dennis also protested against the delay in paying doctors' accounts. Other members having criticized the manner in which sanatorium benefit was administered, Mr. Roberts, in a general reply, said that the obligation to building sanatoriums had not been imposed upon the Insurance Commissioners but upon the Local Government Board. The Act did not give every tuberculous person an unqualified right to sanatorium treatment in the sense of residential treatment; only those persons recommended by insurance committees had the right to claim such treatment.

Finance Bill.

Several important alterations in the Finance Bill were announced on June 21st. The clause imposing increased duties on licences for motor cars was withdrawn, and the Government announced its intention of making up the loss of prospective revenue by a tax of 6d. a gallon on petrol. This change, it was stated, was rendered possible by the fact that the Petrol Control Committee had instituted a central control of petrol stocks, which would be distributed under permits issued by the central authority. It was also announced that it is intended to raise the income a man may have, in order to claim the allowance for children, from £500 to £700. The method of graduating unearned incomes was altered. Clause 20 (Right of soldiers and sailors to pay reduced rates of income tax in respect of their pay) was so amended that while the rate upon a total income from all sources not exceeding £300 remains at 9d., as in the bill, incomes between £300 and £1,000, instead of being liable to a tax at the rate of 2s. 1d., would be subject to a graduated scale—1s. 3d. on incomes between £300 and £500, and 1s. 9d. on incomes between £500 and £1,000; on incomes between £1,000 and £1,500 the rate should be 2s. 3d. instead of 2s. 5d.; the rates upon incomes above £1,500 should remain as proposed in the bill. These reductions, it is estimated, will cost the country £200,000.

ALEXANDRIA is declared officially to be infected with plague, and it is unofficially reported that the disease prevails in Jaffa also.

CAPTAIN ARTHUR RYLAND CHAVASSE, R.A.M.C., only son of the late Sir Thomas Chavasse, left unsettled estate valued at £5,978.

THE Hospital of the University of Pennsylvania, Philadelphia, has opened a clinic for the exclusive study of industrial and occupational diseases. Dr. Alfred Stengel, professor of medicine, is in charge.

SIGNOR LEONARDO BIANCHI, who is a member of the new Italian Ministry, no doubt as a representative of the party he leads—that of the Constitutional Democrats—is professor of psychiatry in the University of Naples and director of the University Clinic for Nervous and Mental Diseases. Although without portfolio, it is understood that he will devote himself to hygienic and social problems arising out of the war, especially the provision to be made for men who have lost limbs or have been otherwise disabled from following their civil occupations.

THE WAR.

THE SECOND GERMAN SURGICAL WAR CONGRESS.

ON April 26th, 1916,[1] the second "Kriegschirurgentagung" was opened in Berlin by Professor v. Schjerning, who reviewed briefly the main surgical events since the previous surgical congress held in Brussels last year. The fact that tetanus had been completely suppressed since then was, he said, a great triumph, as was also the adoption of a uniform treatment for fractures. The prevention of stiff joints by systematic early movements, and the more active surgical treatment of wounds of the skull and abdomen, especially in stationary warfare, also marked important advances. It was officially established that 86.6 per cent. of the soldiers in the field hospitals and special war hospitals, and 90.1 per cent. of the soldiers in military hospitals in Germany were discharged as fit for service; only 1.5 per cent. of the sick and wounded in the military hospitals in Germany had died. He also eulogized the services of the 6,800 nurses and sisters at the various stations on the lines of communication.

THE LOCALIZATION OF FOREIGN BODIES.

The allegation as to the use by the British of dum-dum bullets was repeated by Küttner, whose passion for accusing the British of employing this bullet does not seem to have been cooled by the numerous publications of other German surgeons, who have pointed out the impossibility of distinguishing between wounds inflicted by the dum-dum and the German regulation bullet. He also accused the Belgians of using a rifle bullet on to which a piece of wire had been soldered. Other speakers, discussing the fate of bullets left in the body, pointed out that, *ceteris paribus*, the French copper bullet was less harmful than bullets containing lead, as this was gradually absorbed by the body and excreted in the urine and saliva. Küttner insisted that bullets should be removed not only when they provoked sepsis or pain, or when they were quite superficial, but also when, by the help of the *x* rays, they could be located with precision, always provided that the operation was not dangerous in itself. Above all it was important that bullets should be removed from bone marrow. He had found that the extraction was frequently facilitated by the injection of iodipin into the track of the fistula; methyl violet and pyoktanin were also used. Grashey, in dealing with the localization of foreign bodies, said that there were more than 250 methods, which he proceeded to classify and criticize.

WOUNDS OF BRAIN AND NERVES.

Professor v. Eiselsberg expressed the opinion that tangential wounds of the skull should be operated upon as quickly as possible, provided a skilled surgeon were available. Large fragments of bone should be removed. When once meningitis had developed, its further progress could not be arrested. It was frequently basal, and lumbar puncture was of prognostic value only. The conditions least suitable for operation were those in which the bullet passed through the brain and escaped, and prolapse of the brain. When the bullet remained in the brain, but was superficial, or caused severe symptoms due to suppuration, operation was indicated. Abscess of the brain should be opened, but when the presence of a projectile within the skull caused no reaction, he preferred to wait. The filling up of gaps in the skull caused by projectiles should not be attempted early, as abscesses frequently developed long after the patient was apparently cured. Recent injuries of the cord seldom required immediate operative treatment. Adequate immobilization of the body and retention of a catheter in the bladder or the induction of a fistula of the bladder should be the first measures. Only in the case of compression fracture of the vertebral column was early operation indicated; otherwise it was best to wait eight to ten weeks. Incidentally he remarked that transverse lesions of the cord occurred not only when it was compressed, but also when there was serous meningitis. The prognosis of wounds of the cord was bad, and even when both sensory and motor symptoms improved, there was seldom any improvement in the bladder symptoms. In 16 cases of complete paralysis, in which no definite improvement had occurred in the course of eight to twelve weeks, operation was followed by improvement in 8 cases and by none in 7. When, at the time of operation, serous meningitis was discovered, rapid improvement followed. Of 284 cases of open wounds of the brain, Steinthal said that he still had 37 under treatment; 89 had died, and 118 had returned to the colours. The causes of death in his fatal cases were abscess of the brain, encephalitis and meningitis.

In discussing the treatment of wounds of the nerves, M. Borchardt said that, from the surgical point of view, it was best to operate early. The earlier the operation, the less the amount of scar tissue encountered. The longer a nerve had been divided, the longer did it take to reunite; the sooner an operation was performed, the less were the contraction and atrophy of the muscles. But it was necessary to wait three to five months for the wound to be in a satisfactory state for operating. In many cases symptoms of total paralysis showed considerable improvement during this interval.

WOUNDS OF THE LIMBS, ABDOMEN AND CHEST.

Payr insisted on the advisability of reducing amputations to a minimum; the indications for amputation should be absolute, not merely prophylactic. Extension treatment should be adopted only after the patient had become afebrile. Early in the war secondary operations were necessary in 95 per cent., and they were still as frequent as 75 per cent. The importance of early operation in wounds of the abdomen was emphasized by Sauerbruch, whose experience with abdominal cases, operated on early, had been most gratifying. He considered the prognosis of intestinal fistula bad. In most cases the fistulae were multiple, and were often followed by severe disturbances of peristalsis due to adhesions. The prognosis of haemothorax was, on the other hand, good; when it persisted, he recommended puncture. The prognosis in empyema, of which he distinguished three forms, was worse. When the pleura was directly infected by the projectile, thoracotomy with drainage was indicated. Empyema resulting from suppuration eight to ten weeks after the development of haemothorax was less dangerous. The third form of empyema (caused by rupture of the lung and subsequent infection of the pleural cavity) was more serious, and required thoracotomy and extensive drainage. He recommended thoracoplastic operations when empyemata had left large cavities. Abscesses of the upper lobe of the lung should be opened from behind, whereas abscesses of the lower lobe should be treated on ordinary principles. In his opinion, it was rare for tuberculosis to develop in a lung as a consequence of a wound. Moritz had treated 532 cases of projectile wounds of the lungs, and only 28 patients had died. In 21 out of 511 cases the wound of the lung had been followed by peribronchitic inflammation. In 8 out of 615 cases gangrene of the lung had supervened. Returning to the subject of abdominal wounds, Läwen pointed out the high mortality of wounds of the kidney; the mortality in 28 such cases was 93 per cent.

[1] *Muench. med. Woch.*, May 16th, 1916.

CASUALTIES IN THE MEDICAL SERVICES.

ROYAL NAVY.

Killed in Action.

SURGEON GEORGE MOORE JOHNSON, who met his death on H.M.S. *Defence* in the naval battle in the North Sea on May 31st, was born in 1879, and was the eldest son of Mr. G. W. M. Johnson of Childs' Bank and of Mrs. Johnson of Shortlands, Kent. He was educated at Charterhouse and at Magdalen College, Oxford, and the London Hospital, taking the degrees of M.A., and M.B., Ch.B. in 1908. He held the posts of house-physician and house-surgeon at the Radcliffe Infirmary, Oxford. In January, 1913, he went to Trinity, Newfoundland, and practised there till after the outbreak of war. He returned to England in January, 1915, and held the posts of assistant tuberculosis officer and school medical officer for the county of East Suffolk till he applied for a post as surgeon, R.N., when he was appointed to H.M.S. *Defence*. He leaves a widow, to whom we offer our sympathy. Such is the brief record of a man of whom his friends—and they were many—felt certain that he would have done good and distinguished service in his profession. Always fond of

sport and good at all games, he was a good shot and a keen and successful fisherman and boatman; indeed, in the course of his professional duties in Newfoundland he often went out in such weather that the fisherman would be anxiously awaiting his return. He had a very keen sense of his duty to his professional work, to which he applied abilities considerably above the average. Gifted with a superb body, he had a boundless store of energy, and lived his life with a zest and keenness it was a pleasure to watch, but beyond all was his extraordinary capacity of forming real friendships socially and professionally, and he will be sadly missed by a very wide circle.

ARMY.

Wounded.

Captain C. H. Maskew, R.A.M.C.(T.F.)
Captain J. F. H. Perras, Canadian Army Medical Corps.
Captain W. L. Shannon, Canadian Army Medical Corps.

PRISONERS OF WAR.

The *Pioneer Mail* of May 20th states that, among the invalided prisoners of war who were exchanged by the Turks, after the surrender of Kut, was Private Binod Bihari Chatterji, of the Bengal Ambulance Corps, who stated that all the other members of the detachment serving at Kut under General Townshend were well.

DEATHS AMONG SONS OF MEDICAL MEN.

Austen, Mark, Midshipman H.M.S. *Queen Mary*, killed in the action of May 31st, aged 16, was the son of Fleet Surgeon Thomas Austen, of H.M.S. *St. Vincent* (also engaged), and of Mrs. Austen, of 10, Palmeira Avenue, Brighton. After preparation for the Royal Navy he became a cadet captain at the Naval College, Osborne, and was appointed to his ship from Dartmouth College on January 1st, 1916. He had the qualities of a good cricketer.

Champneys, John Dalrymple, Lieutenant Leicestershire Regiment, who was officially reported "missing, believed wounded," in France on November 22nd, 1915, and who is now known to have been captured by the Germans and to have died of his wounds on the following day, aged 26, was the elder surviving son of Sir Francis H. Champneys, Bt., of Nutley, Sussex. He was educated at Rossall School, of which he was a foundation scholar, and matriculated at Balliol College, Oxford, taking honours in the Final School of Law. He was a good all-round athlete. At the beginning of the war he obtained a commission as second lieutenant, and was soon after appointed lieutenant. He was mortally wounded and captured while on patrol duty in France, died the following day, and was buried by the Germans at Monchy. His commanding officer writes: "He is a great loss to me, as he was an exceedingly useful and gallant officer, and has carried out many useful reconaissances."

Elphick, William Roy, Second Lieutenant Indian Army, eldest son of the late Major H. W. Elphick, I.M.S., died of cholera at Bombay, on June 7th, aged 22. He got his commission on August 2nd, 1914, and was serving in the 108th Infantry, formerly the 8th Bombay Infantry.

Harvey, Ralph de Warene, Second Lieutenant Dorset Regiment, only surviving son of Harold Harvey, M.R.C.S., of Wyke Regis, Dorset, died of wounds on June 7th, aged 18. He got his commission on January 27th, 1915, after being educated at Weymouth College, where he was in the school eleven. His elder brother, Keith Harvey, serving in the Australian Force, was killed in France on April 25th last.

Page, Henry Rauthwell, of Winnipeg, and of Brough Fold, Kendal, Lieutenant Canadian Infantry, second son of the late David Page, M.D., killed in action on June 10th, aged 39.

Robertson, Thomas Arthur May, Sub-Lieutenant R.N., aged 21, was killed on H.M.S. *Queen Mary* in the North Sea action on May 31st. He was the third, but eldest, surviving son of Dr. James S. Robertson, of West Kensington, whose second son, Frank Henry May Robertson, came over with the 1st Canadian Contingent, and died in France on April 12th, 1915, at the age of 21.

MEDICAL STUDENT.

Aitchison, Andrew J., Second Lieutenant Highland Light Infantry, who died from wounds in France, was about 27 years of age, and was the youngest son of Mrs. Aitchison of Alexandria. He was studying medicine at the Glasgow University when he joined the colours over a year ago.

NOTES.

SIR DOUGLAS HAIG'S DISPATCH.

ON June 15th the War Office published a dispatch, dated April 30th, from General Sir Douglas Haig, G.C.B., Commander-in-Chief of the British Forces in France, mentioning the names of 4,800 officers and men for gallant and distinguished conduct in the field. The list of those thus mentioned fills thirteen columns in the *Times* of June 16th. The following are the names of the medical officers included in the list. In addition, a large number of members of the various nursing services and of non-commissioned officers and men of the R.A.M.C., Regular and Territorial, are mentioned.

1st Life Guards.

Surgeon-Major R. M. Cowie.

2nd Life Guards.

Surgeon-Captain E. J. H. Luxmoore.

Army Medical Staff and Royal Army Medical Corps.

Surgeon-General R. H. S. Sawyer.

Colonels H. Carr, W. L. Gray, O. R. A. Julian, C. J. Macdonald, F. J. Morgan, F. R. Newland, H. I. Pocock, H. N. Thompson, S. Westcott, J. Wilson, R. W. Wright, A. L. F. Bate, A. Fullerton (temporary).

Lieutenant-Colonels F. C. Buswell, H. N. Dunn, J. D. Ferguson, J. V. Forrest, J. S. Gallie, F. W. Hardy, H. C. R. Hime, E. W. Slayter, H. H. Thurston, E. A. Bourke, A. W. N. Bowen, O. W. A. Elsner, J. G. Gill, J. Grech, H. Hewetson, W. J. Taylor, A. C. Thompson, G. N. Stephen (temporary).

Majors H. H. A. Emerson, R. L. V. Foster, W. R. P. Goodwin, P. H. Henderson, D. O. Hyde, E. T. Potts, J. H. Brunskill, R. A. Bryden, T. S. Coates, R. F. M. Fawcett, A. C. H. Gray, R. C. Hallowes, W. J. S. Harvey, A. J. Hull, T. C. L. Jones, W. D. C. Kelly, P. J. Marett, W. G. Maydon, A. C. Osburn, H. G. Pinches, A. M. Rose, H. G. Smeeth (S.R.), A. E. Webb-Johnson (temporary), C. F. White, J. H. R. Winder, B. F. Wingate, J. C. Webb (temporary).

Captains A. H. Heslop, W. B. Purdon, G. H. Dive, G. R. Edwards, L. T. Poole, H. C. D. Rankin, J. Rowe, W. C. Smales, A. D. Stirling, G. P. Taylor, J. L. Wood, W. A. Wright.

Captains, Special Reserve, W. J. Adie, W. M. Biden, S. M. F. Cesari (killed), D. B. Chiles-Evans, D. Dougal, T. I. Dun, W. R. Gardner, R. A. Greenwood, A. T. Logan, D. C. Macdonald, W. C. B. Meyer, W. A. Miller, R. Montgomery (killed), A. C. Perry, A. L. Robertson, H. E. Rose, H. N. Stafford, A. M. Thomson, P. Thornton.

Temporary Captains A. B. Cheves, H. J. Couchman, R. D. Fitzgerald, C. Y. Ford, J. H. Fletcher, A. C. Giles, A. S. Glynn, T. L. Gurney-Dixon, A. C. Hancock, C. Hardy, H. M. Hart-Smith, C. Kingston, E. C. Lindsay, N. P. L. Lumb, J. B. McCabe, D. J. McRae, E. L. Mackenzie, E. S. Marshall, D. C. Munro, H. Moore, J. W. Pell, E. L. Reid, H. H. Robinson, W. A. Sneath, J. L. Stewart, A. Stokes, W. A. Taylor, T. H. Whittington, C. M. Wilson, E. White, D. H. D. Wooderson, P. R. Woodhouse.

Temporary Lieutenants F. J. Blackley, W. E. Burrows, A. J. W. Cunningham, A. J. Cunningham, J. P. Musson, E. T. Pinkey, C. L. G. Powell, R. R. Scott, H. D. Smart, T. Strain.

Quartermaster and honorary Major: H. Spackman.

Quartermaster and honorary Lieutenants F. O. Chappell, E. W. J. Escott, J. D. Genese, J. W. Osborne, J. T. Packard, H. S. Polhill, W. C. Renton.

Dentists, Mr. A. C. Valadier, temporary Lieutenant R. L. O'Grady.

Royal Army Medical Corps (T.F.).

Colonels C. E. Harrison, Sir J. R. A. Clark, Bt.

Lieutenant-Colonels J. Clay (Northumberland C.C. Station), J. McKinnon (W. Riding F.A.), W. Peake (N. Midland C.C. Station), R. M. West (N. Midland F.A.), E. A. N. Wraith (N. Midland F.A.).

Surgeon Major A. W. Cuff (W. Riding Brigade R.F.A.).

Majors E. F. Finch (W. Riding F.A.), A. C. F. Turner (N. Midland F.A.).

Captains H. M. Calder (London F.A.), W. Cowie (London F.A.), H. K. Dawson (London F.A.), N. A. Dore (London Sanitary Service), S. S. Greaves (W. Riding F.A.), S. J. C. Holden (W. Lancs. F.A.), M. T. Inglis (S.R.), A. E. Ironside (London F.A.), R. Jacobs (London Sanitary Service), G. G. Johnstone (London Sanitary Service), C. D. Law (S. Lancs. Regiment), J. P. Matthews (W. Riding F.A.), J. Miller (N. Midland F.A.), F. J. J. Ney (London Sanitary Service), H. G. Pearson (London Sanitary Service), J. E. Sandilands (London F.A.), A. Sutcliffe (Northumbrian C.C. Station).

Quartermaster and honorary Lieutenant S. Lyall (Northumbrian F.A.).

Canadian Army Medical Corps.

Lieutenant-Colonels G. La F. Foster, J. T. Fotheringham, R. P. Campbell.

Majors J. A. Amyott, A. C. Rankin, A. E. Snell.

Captains J. A. Crozier, H. B. Jeffs, J. S. Jenkins, G. C. Hale.

Indian Medical Service.

Major E. A. C. Matthews.

Captains R. L. Binning, W. B. Cullen, P. K. Gilroy, J. G. B. Shand.

Indian Subordinate Medical Department.

Assistant Surgeons W. E. Moody, E. J. Pell.

Sub-Assistant Surgeons Kunniyal Raman, Nabi Ahmed Sidiqui, Rafi-ud-din Khan.

HONOURS.

The Victoria Cross has been awarded to Captain John Alexander Sinton, M.B., I.M.S., for conspicuous bravery and devotion to duty. Although shot through both arms and through the side he refused to go to the hospital, and remained, as long as daylight lasted, attending to his duties under very heavy fire. In three previous actions Captain Sinton displayed the utmost bravery. Captain Sinton was a student at Queen's College, Belfast.

BRITISH RED CROSS SOCIETY.

The motor department recently dispatched nine cars and thirteen drivers to France, and one hundred other cars are ready to follow. Ten motor ambulances have been sent to the Russian Army in the Caucasus, and requests for special motors have been received from East Africa. There are fifteen launches at work on the Tigris, and, in addition, five

large and two small ambulance launches have recently been dispatched to Basra. The Aberdeen Branch has dispatched a motor launch to Malta to replace one sent from there to Mesopotamia.

PHYSICAL CLINIC FOR WOUNDED AND DISABLED SOLDIERS.

We have received the following communiqué: A physical clinique for the treatment of wounded and disabled officers is about to be opened at 126, Great Portland Street. The treatment, which will be entirely free of charge, will be under the direction of an honorary medical and surgical staff. In addition to the more familiar physical remedies (hot air and electrical baths, douches, massage, and manipulation) the clinic is furnished with whirlpool baths for the local treatment of stiff and disabled limbs and with a complete series of apparatus for mechanical treatment. The committee and medical staff invite members of the medical profession to view the clinic on Monday, Tuesday, and Wednesday, June 26th to 28th, and matrons and nurses on Thursday, June 29th, between 2.30 and 5 p.m. Cases will be received for treatment on and after Monday, July 3rd, at 2.30 p.m.

FEDERATED MALAY STATES HOSPITAL.

Thanks to the liberal financial support accorded by all classes of the community in the Federated Malay States, the Committee of Management of the Military Hospital established by these States at Blackmore End, Kimpton, Herts, has been able to increase the accommodation from 80 to 168 beds. Two new wards, each of 44 beds, similar in type to those of the Canadian Military Hospital at Orpington, Kent, have been erected in the grounds of the house kindly lent by Mrs. Vincent. The hospital is being equipped with an *x*-ray installation, the cost of which is being borne by Messrs. Edward Boustead and Co., of Leadenhall Street, E.C., in conjunction with Messrs. Boustead, Hampshire and Co., of the Federated Malay States. Captain G. D. Freer, R.A.M.C.(T.), formerly P.M.O., Selangor, is in charge of the hospital.

MEDICAL OFFICER WANTED.

3rd Line Field Ambulance, R.A.M.C.(T.F.)

Vacancy for a keen Medical Officer as Lieutenant (promotion to Captain in six months) in above unit, at present in England but draft supplying; should ride or learn. Must sign for the war and imperial service obligation (foreign service if required). State age and experience.—Address, Commanding Officer, No. 1234, BRITISH MEDICAL JOURNAL Office, Strand.

England and Wales.

ROYAL COMMISSION ON UNIVERSITY EDUCATION IN WALES.

THE members of the Royal Commission on University Education in Wales have been paying a visit to Cardiff this week, where they have made themselves acquainted with the organization and equipment of the University College of South Wales and Monmouthshire and with the proposals for the establishment of a National Medical School for Wales, and the part which the Cardiff Hospital is prepared to take in that school. They propose to visit North Wales next week, and after the annual meeting of the North Wales Branch at the University College, Upper Bangor, on Tuesday, June 27th, a meeting of the profession will be held at 3 p.m. to hear an address by Sir William Osler, one of the members of the Commission, on the proposed National Medical School for Wales. It is expected that Mr. Thelwall Thomas, Professor of Regional Surgery in the University of Liverpool, and Lieutenant-Colonel Lynn Thomas, C.B., Consulting Surgeon to the Western Command and Surgeon to the Cardiff Hospital, will take part in the discussion on the subject. We hear that there is a proposal on foot to establish a separate University of Cardiff—a proposal which will call for very serious consideration, inasmuch as it seems extremely doubtful whether, with its present population, the policy of having two universities in the Principality is well advised. The proposal would no doubt come within the terms of reference of the Royal Commission, which is instructed, among other matters, to consider in what respects the present organization of university education in Wales can be improved.

NEW HOSPITAL SUPPLY DÉPÔT AT MANCHESTER.

The demand for surgical requisites and hospital garments for wounded soldiers and sailors has led to the establishment of the "Manchester War Hospital Supply Workrooms" at Dover House, opposite the University; they are under the superintendence of Lady Donner, with a committee of ladies, and under the auspices of the British Red Cross Society and the Lancashire County War Comforts Association. The workers are all voluntary, and the rooms are open every day except Saturdays and Sundays. The work will supplement without interfering with the other work of the Red Cross Society or the County Association's working parties.

THE COTTAGE BENEFIT NURSING ASSOCIATION.

The Countess of Gainsborough presided at the annual meeting of this association, held on June 14th at Denison House, S.W. The objects of the society may be briefly stated as the training and supply of cottage nurses for country districts, the confederation of local associations working on the Holt-Ockley system, and the registration of cottage nurses, with needful supervision of their conduct and performance of duties. These nurses are selected from women (of good character, intelligence, and health), between 23 and 35, of the cottage class, and are trained during a four or six months' course in the theory and practical duties of sick nursing, and in some cases in maternity work. Their services are then placed at the disposal of the branch committees (of which there are some 150 in the country), and are available for tending sick persons in cottage homes, where they not only carry out the nursing instructions of the doctors, but give help in the household arrangements. To entitle to this benefit the patient has to pay a small annual subscription as well as a weekly fee during the nurse's residence, the amount of which is graded to meet the beneficiary's circumstances. The nurse is paid by the association, which reserves her certificate till she has proved her efficiency by four years' satisfactory service.

Miss B. M. Broadwood (the honorary secretary and director of the association) urged the importance of such service in sickness continuing to be available for cottagers in villages outside the range of district nurses. Nursing was a *service* rather than an independent profession. The doctors were the officers, and their instructions were to be carried out by the nurses. She trusted that the authorities of the College of Nursing might see their way to recognize in a separate list nurses of this special class, who did useful, if humble, work in the community, which could hardly fall within the scope of hospital-trained nurses. She was followed by Miss E. C. Joseph (Somerset), who outlined a scheme for the registration of nurses, based upon the standardization of efficiency; the recognition of different classes in the nursing service (for example, village nurses, sanatorium nurses, school nurses, children's sick nurses, and mental nurses, as well as fully trained hospital nurses), much as in the Teachers' Register were found elementary, secondary, university and special subject teachers, all hall-marked as efficient in their own class, though possessing different qualifications, certificates, and knowledge. She thought the college could do useful work by bringing within its fold nurses of all grades, with a recognized minimum standard of practical and theoretical efficiency, at the same time enabling a nurse to specialize, and to be recognized as "trained" in various branches of nursing. She recommended independent examinations distinct from those of the training schools, and that there should be at least two, the final admitting to qualification in various "schools," just as was the case at the universities with regard to final degree examinations. Specialities should be specially registered, so that the public might know for what the nurse was fitted and employ her accordingly. A short discussion followed.

RED CROSS WORK IN THE COUNTY OF LONDON.

The County of London Branch of the British Red Cross Society has issued a report on its work during the first seventeen months of war. A large part of its eighty pages is concerned with the eighteen Voluntary Aid Detachment hospitals which the branch has established in the county area. (Since December, 1915, the end of the period covered by the report, we believe that the number has grown to twenty-three.) The largest of these hospitals is that handed over to the Kensington Division of the branch by the trustees of the Weir Hospital Charity; it has 150 beds, and the report claims for it that it is one of the best hospitals of its kind in England. The other hospitals are mostly private houses which have been lent for the purpose, and accommodate each from thirty to fifty patients. Up to the end of 1915 the admissions to the hospitals numbered close upon 3,000. Other forms

of work undertaken by the branch have included general service in military hospitals and the forming of squads of Red Cross men to assist in the transport of the injured across London; the report records with pride that among the injured thus assisted was His Majesty the King. The only grudging word in the report is a reference to the disadvantage under which a County of London branch must labour owing to the comparative lack of local patriotism in the youngest of the counties; but with twenty-one divisions all keenly at work, and Voluntary Aid Detachments at a strength of above 7,000, not to speak of 350 members serving abroad, even the conglomerate boroughs which make up London ought to feel that they have here something in common and to be proud of.

Scotland.

DR. ROBERT A. FLEMING has been appointed on the staff of officers of the King's Body Guard for Scotland (Royal Company of Archers) vice Dr. William Allan Jamieson, deceased.

At a meeting of the Aberdeen University Court on June 13th Principal Sir George Adam Smith announced that the University had accepted an offer of Sir J. R. D. McGrigor to convey to the University a painting of the quadrangle of Marischal College as it was before the recent additions, and including the obelisk which used to stand there before it was removed to the Duthie Park. The Principal said they accepted it as a memorial of Sir James McGrigor, one of the most illustrious medical graduates of the University. The painting is by the late Mr. J. Giles, a well known Aberdeen artist, and is dated 1861. McGrigor was chief of Wellington's medical staff in the Peninsular War. An account of him appeared in the BRITISH MEDICAL JOURNAL of July 25th, 1914. McGrigor was Directer-General from 1815 to 1851, and did much for the reform of the medical service of the army. He was described by Wellington as "one of the most industrious, able, and successful public servants I have ever met with."

THE SCOTTISH RED CROSS BRANCH.

A deputation, headed by Major David Wallace, C.M.G., R.A.M.C.(T.), which at the request of the Executive of the Scottish Red Cross Branch recently paid a visit to France, has reported very favourably on the work of the Scottish units. At Rouen they noted great improvements in the accommodation of the staff, and the general air of comfort and amenity of the grounds and buildings of the Scottish hospital, and found the Scottish convoy was undertaking all the motor ambulance work in the centre. They inspected the personnel and cars, which number over one hundred, and were satisfied with the arrangements for the maintenance and repair of vehicles. They were informed by the D.D.M.S. that the work of the convoy was highly appreciated. In Paris they visited the Hôpital de l'Écosse, carried on by the branch since September, 1915. They found that it was working in a most satisfactory manner, and was highly appreciated by the French military authorities. A Scottish convoy of thirty ambulances has been working on the French front since the beginning of this year, and has earned golden opinions from the Minister of War. The branch has recently presented an *x*-ray ambulance car to the French, another to the Russians, and three for the use of our own troops. Each has a complete *x*-ray apparatus and a portable tent, and is designed for use immediately behind the firing line.

Ireland.

A MIDWIVES BILL FOR IRELAND.

AT a special meeting of the Royal College of Physicians of Ireland, held on Friday, June 16th, the President and Fellows unanimously adopted a resolution urging on the Government the pressing necessity which exists for the passing of a Midwives Bill for Ireland, which is now the only part of the United Kingdom without legislative control of midwives. Such a bill is needed to protect lying-in women, to control infant mortality, and to enable Irish trained midwives to take their proper place in the ranks of the registered midwives of the United Kingdom. The Parliamentary Committee of the College was empowered to take such steps as might be deemed necessary to help forward such legislation.

Sydney.

THE UNIVERSITIES AND THE WAR.

AT a recent meeting of the Senate of the University of Sydney a communication was received from the University of Queensland in regard to the award of university scholarships and medals to children of alien parentage during the continuance of the war, and asking for co-operation between the universities to secure the objects aimed at. It was resolved:

> That, in the opinion of the Senate, it is not desirable that public endowments in the form of public exhibitions, scholarships, bursaries, medals, or prizes should be awarded to persons of enemy parentage who are unable to produce satisfactory proof of naturalization with complete release from their obligations of allegiance to the country of their birth or descent.

THE DEPARTMENT OF PUBLIC INSTRUCTION AND THE NEW SOUTH WALES BRANCH OF THE BRITISH MEDICAL ASSOCIATION.

The Political Labour League has been holding its annual conference in Sydney, and its proceedings have been marked by some extraordinary speeches and votes. At one of the sessions a letter was received from the Minister of Education, Mr. Griffith, asking that the conference should be given an opportunity of discussing the question of the British Medical Association and the medical treatment of school children. A member obtained a suspension of the standing orders to move the following:

> That this conference extends its unstinted support to the Government in resisting the attempts of the British Medical Association to prevent the medical treatment of defective school children by their threats of the boycott of those members accepting appointments for that purpose.

Permission was given to Mr. Griffith to speak on the matter. He stated that, as the result of an inspection by a travelling clinic, the parents of 57,000 school children were notified that their children were physically defective. After twelve months, 40,000 of these children were still without treatment. If not attended to, the defects would become permanent. In most cases the lack of treatment was due to the want of means to pay the heavy fees charged by the medical practitioners. In the country it was worse because often treatment could not be obtained. Money for a travelling clinic was voted by Parliament, and medical men were advertised for. The British Medical Association had said it would give permission to its members to do the work, provided that the parents of the children certified that they were not able to pay for treatment. He (Mr. Griffith) resented this as putting a brand of pauperism on certain children. Later on the British Medical Association had decided to "blackball" those doctors who did the work. As a response he had obtained permission to bring in legislation to provide that any registered medical practitioner who refused to meet the Government doctors in consultation would lose his own registration. It was of enormous importance to give the children a chance in life. It had been said that the State could not afford the money, but he replied that the country could not afford to have 40,000 children growing up with physical defects. He would rather send to Chir[illegible] for medical men than allow it. It had been stated that the British Medical Association was a kind of trades union, and that it had a sneaking regard for the unionists. It was not, however, a trade union, but a medical combine. The fight against the British Medical Association was going to be a bitter one, and he hoped for the unanimous support of the unionists and leagues.

The motion was carried unanimously.

Mr. Griffith reiterated in this speech a statement which does not accurately express the position taken up by the profession. The British Medical Association has never refused to treat these defective children, but insists that the

means for their treatment are already in existence, and that there is no necessity to appoint special doctors for this purpose.

THE ROYAL PRINCE ALFRED HOSPITAL AND THE WAR.

At the recent annual meeting of the subscribers of the Royal Prince Alfred Hospital, Sydney, the Chairman, Sir Thomas Anderson Stuart, referred to the effect of the war on the efficiency of the hospital. When war was declared the board determined that it was its duty to keep the positions of those members of the staff who desired to serve the empire with the military forces vacant until their return. Of the 40 honorary medical officers, there were 13 on active service; of the resident medical officers, 20 were at the front; of the nursing staff, a like number had joined the Expeditionary Forces; and of the members of the lay staff, 22 were under arms. He referred in sympathetic terms to the death of Dr. Verge in Egypt; his name appeared on the roll of honour placed in the main hall of the hospital by the kindness of Mr. S. Hordern, the new honorary treasurer. The board had also determined not to countenance permanent appointments to the honorary staff during the currency of the war, so that when the war was over and the men came back they would not find places for which they would have liked to have been candidates permanently filled in their absence.

The treatment of patients in the venereal clinics was begun on January 11th, 1915; unfortunately, it had been an overwhelming success in regard to numbers, but, fortunately, it had been an overwhelming success in regard to results. The number of persons, male and female, treated at the clinic was close on 2,300 in the past year. These patients overran the institution, and the doors had to be closed in order to limit their number. This state of things was a disgrace and a shame to Sydney, and a perpetual menace to its people. The chairman stated that he did not wonder that there were 500 soldiers constantly in the venereal compound connected with the military camp. He pleaded for a greater number of venereal night clinics connected with the public hospitals. Eighteen additional beds had been provided for children between the ages of 3 and 8 years suffering from congenital and other forms of syphilis. Regarding the question from the financial aspect, he emphasized the waste of keeping 500 men in idleness and worse in the compound. When these men were discharged from the service, as often happened, the cost of their training and equipment was thrown away.

VITAL STATISTICS.

According to the State Government statistician's report on the vital statistics of Sydney for the year 1915, the estimated population of the metropolitan area was 763,000 on December 31st; the city contained 104,200 and the suburbs 658,800. The increase during the year was 10,500. The city population decreased by 6,500, but the suburban population increased by 17,000. The number of marriages was 10,122 (the largest number yet recorded), corresponding to a rate of 13.36 per 1,000 of the population. The births registered during the year numbered 20,871, equivalent to a rate of 27.54 per 1,000 of the population. The number of births is the highest ever recorded in the metropolis, but the rate, which is 2.5 per cent. below the average of the preceding five years, is the lowest since 1910. The deaths numbered 8,189 (4,461 males and 3,728 females), equal to a rate of 10.81 per 1,000 of the population. The rate is equal to the average of the past five years. An exceptional mortality was experienced in November and December among infants, which materially affected the year's rate, which in other months was remarkably low.

THE Kansas State Board is endeavouring to get the State Universities to co-operate in an effort to induce the Government to establish a health experiment and research laboratory in connexion with each university school of medicine under the United States Public Health Service.

ON June 16th the President of the French Republic accompanied by Madame Poincaré and the Minister of Labour, M. Albert Métin, visited an exposition of the work of maimed soldiers in the Galliéra Museum. M. Poincaré expressed his admiration of the ingenuity and artistic sense shown by the men.

Correspondence.

MEDICAL OFFICERS, SPECIAL RESERVE AND TERRITORIAL.

SIR,—May I draw the attention of your readers to the paragraph on page 144 of the SUPPLEMENT to your issue of June 17th which reads:

> As every doctor coming under this heading B [that is, those who do not enrol], whether refused exemption or exempted only temporarily, will have been brought in under the compulsory provisions of the Acts, and as (by not enrolling) he has not availed himself of the privileges offered under A.C.I. 485, his term of R.A.M.C. service will be for the *whole period* of the war, and *on the "ordinary" rates of pay*, without any of the special arrangements as to pay or twelve months periods or otherwise that have been *accorded* to doctors who *offer* themselves for service in the R.A.M.C. in this war.

May I point out that:

1. Regular, Territorial, and Special Reserve medical officers are all paid the "ordinary" rate of pay, and that they serve for the full period of the war.

2. It therefore follows that in condemning those medical practitioners who do not enrol, to the "ordinary" rates of pay and service for the "full period of the war," you are condemning them to precisely the same term of service as has been accepted by the Regular, T.F., and Special Reserve officers—in other words, Sir, the T.F. medical officers who did their bit during peace time, and will continue to do so for the "full period of the war," are to be classed in the same category, financially and morally, as the man who has never done anything, and apparently doesn't wish to do it.

Further comment is unnecessary.—I am, etc.,

A SATURDAY AFTERNOON (R.A.M.C.T.F.) SOLDIER.

June 17th.

*** Judging from the terms of this letter, it does not appear that the writer fully appreciates the significance of the fact that the paragraph he quotes occurs in an official War Office memorandum. We altogether agree with what we understand to be the intention with which the letter is written, for we think that the officers of the Special Reserve and the Territorial Force are being shabbily treated by the State.

"THE SOLDIER'S HEART."

SIR,—When I wound up the discussion on "the Soldier's Heart" I did not anticipate that I should have to deal with very irrelevant letters written under the same title. It should be the duty and privilege of an editor to see that his correspondents not only stick to their text but show some knowledge of the subject on which they write. The late John Edgar, D.D., after listening to a sermon by one of his students, said, "Sir, one might think that your text had got the typhus fever, you kept at such a respectable distance from it." This caustic criticism was not more applicable to the sermon than to the letters of my critics.

The letter of Dr. Knox is merely a testimonial, in my opinion a very unnecessary one, to rehabilitate the professional ability—which was never assailed—of Dr. Florence Stoney. She may well exclaim, Save me from my friends! He incidentally says that I "should read more extensively and accurately." What are his grounds for turning my criticism on myself? Simply that I did not read a paper by Dr. Stoney on the *x*-ray treatment of Graves's disease; if I had, I do not know that I should have discovered anything new. Such treatment dates a long time prior to 1912, and I might claim to have been among the first who used the *x* rays in the treatment of exophthalmic goitre. I do not know who first used them in the treatment of this disease, and I do not care; there is nothing original in the idea: it is merely an extension of Keen's treatment of the spleen to the thyroid gland. I may candidly tell Dr. Knox, and I am pleased to say so, that I do not read a tithe of current medical literature, but if I were dealing, or attempting to deal, like Dr. Florence Stoney, with a question of priority I should take care to know the facts.

I would like to say to Dr. Lyon Smith, in the language of Byron, "A man must serve a time to every trade: critics are ready made." With his reference to my "*remarkable* sentence" I should like to turn him over to the tender mercies of Dr. Mercier. He says that I point

"out the association between the soldier's heart and trouble in the ductless glands." When did I do this? I thought that I had associated the irritable heart so commonly met with in soldiers of the present day with overaction of the thyroid. He complains that I "do not throw any light upon the factors which cause these glands to misbehave." I thought that I had, but at any rate I am sorry that I have not enlightened Dr. Smith. Even now I would try to do so if I thought that this anxious inquirer really sought information. I never said that he was to "draw the line rigidly at these two bacteria" of diphtheria and pneumonia respecting the effects of toxins on the adrenalin function. Let us have, by all means, the specific actions of the "hundreds of other bacterial ferments." The more knowledge we get the better, but let it be knowledge and not random talk about such ferments as have no more to do with the causation of the irritable heart than the flowers which bloom in the spring. As my quotation of Sir Isaac Newton's dictum does not seem to have made any impression on Dr. Lyon Smith I will give him a Latin one, which he will find, along with another by Sir William Hamilton, in *The Principles of General Physiology* by Professor W. M. Bayliss. "*Entia non sunt multiplicanda praeter necessitatem.*" Dr. Smith says that "it would be interesting to know the precise laboratory methods which Sir James Barr recommends for this important eliminative process." This may appear very smart to Dr. Lyon Smith, but I hope not to others. I should have thought that it would not require a laboratory method to eliminate a process which was not in action. At present I only wish to eliminate this belated critic.

My dental friend, Mr. J. G. Turner, evidently thinks that he has got his teeth into the subject of "the soldier's heart." I shall now try to release the matter from his incisive grip. I would remind him that the usual septic organisms which are found in the mouth and nasopharynx and their effects are well known, but the symptoms to which they give rise, when they or their toxins find their way into the circulation, are not those of "the soldier's heart." "Practically every soldier is the subject of some degree of dental or nasopharyngeal sepsis." Why limit the sepsis to the unfortunate soldiers? If he examine the mouths of all the dentists and doctors in London, how many does he expect to find aseptic, and how many of the examinees does he expect to find suffering from "the soldier's heart"? Personally I am always proclaiming a raid on oral sepsis, but I see much which appears perfectly harmless even when the breath stinks. So long as the organisms remain on the surface they can be disregarded, though in the interests of cleanliness, of dentistry, and of outsiders this is not advisable. It is quite true that three gentlemen discovered a harmless organism, which they thought was the cause of "the soldier's heart," but I think I scotched that idea last November; at any rate, its propounders have not come forth with any attempt at proof. Moreover, you cannot cure the irritable heart by eradicating the sepsis; there are many cases of "the soldier's heart" without any evidence of sepsis or septic absorption, and the symptoms continue after the dentist has worked his sweet will.

On the other hand, "the soldier's heart" is invariably associated with a more or less enlarged and overacting thyroid; the symptoms of "the soldier's heart," pure and simple, are those of hyperthyroidism and of nothing else. The causes of the thyroid taking on excessive action is beyond my present object. Of course there are many cases of tachycardia without any excessive function of the thyroid, and we should not confuse merely rapid action of the heart, however frequent, with hyperthyroidism, which presents many other definite symptoms. Perhaps Sir William Hamilton's dictum will do Mr. Turner good. "Neither more, nor more onerous, causes are to be assumed than are necessary to account for the phenomenon."—I am, etc.,

Liverpool, June 17th. JAMES BARR.

ON MALUNITED AND UNUNITED FRACTURES.

SIR,—Lieutenant-Colonel Robert Jones, in his paper on this subject published in the JOURNAL of June 10th, states that for various reasons a certain proportion of fractures take longer to unite than others, and says that he prefers not to waste time on such cases as tabes, syphilis, and acute diseases, but to go to what is, in his opinion, the root of the matter in the average case—namely, inefficient reduction, compression by splint and bandage, etc. I maintain that first and foremost, provided reasonable care is shown in practical details of alignment, etc., the root cause of non-union is the absence of lime salts, partly due to shock, partly to failure to select a diet containing such salts, and partly to the absence of medical treatment which might be carried out prophylactically in every case of fracture from the start. Why does the poultry farmer give grit to his hens? In order to make strong egg shell. As to treatment, Lieutenant-Colonel Jones says: "If a case of delayed union is first seen in the seventh or eighth week we need do no more than make quite sure of good alignment, etc. *Nature will do the rest.*" Will she? My hypothesis as outlined above suggests she may sometimes but not nearly always. Why not ally medicine with surgery, and try routine treatment of all fractures with the chemical constituents of bone; no suggestion as to suitable diet is made. I suggest plenty of milk, for it is rich in lime (1¼ gram per litre, some as citrate and some as phosphate), eggs for the iron and phosphorus they contain, all cereals, porridge, and plenty of vegetables such as asparagus, radishes, turnips which contain plenty of lime salts. Is it not well known to farmers that turnips are the best thing to feed weak-boned animals on? The organic constituent of bone may be derived from meat, but it can be obtained from fish; at any rate plenty of milk suggests plenty of lime salts at disposal of the patient's economies.

The treatment by percussing and damming referred to by Lieutenant-Colonel Jones is, I take it, designed to stimulate and consolidate the indolent callus, to convert it, as he says, into an osteogenetic factory, so that bone may be generated. I suggest that this stimulating and consolidating action can be produced at any time by giving lime salts, and at any stage of non-union. I have carried this out successfully nine months after the accident in a case of fractured femur which had been plated and the ends rubbed together at a hospital with no success. I used it also in a fractured metacarpal bone with weak union at the end of two months; in a week it was strong, and the old callus levelled down and tendon movement freed. In an old fractured patella, twice wired, the second time with good union apparently, but much lumpy old callus, which prevented free movement, the exhibition nine months after the accident of lime salts acted so well that the patient could easily go back to work after a week's treatment. I treated a complete fracture of the tibia through the tibial tubercle of a man run over by a taxicab. The case was *x*-rayed at a hospital which had no bed free; at the end of ten days I took the splint off for massage and found hardly any evidence of union starting at all; the leg sagged at the slightest movement. I then amused the patient by telling him to watch the result at the end of four days' treatment with lime salts; on removing the splint, callus was evident and becoming hard, and there was no more sagging at the seat of fracture. This patient, although 70 years of age, got about on crutches at the end of five weeks and with a stick at the end of six, when he wished to go back to work. I have treated an old shrapnel wound of the wrist with exuberant callus (nine months in hospital), and in a few weeks movements have become nearly normal—before there were none.

This diet idea, of course, is not new, but is strangely absent from the usual textbooks; I have met with it only in Stimson's, where a good tonic—preferably one containing lime salts—is said to be useful. I say give syrup. ferri phos. co., which contains iron phosphoric acid, calcium carbonate, potassium bicarbonate, and sodium phosphate, which comes as near the constituents of bone as can be; 1 to 2 drachms a day in tablets should be given from the start in every case of fracture. The pathology of it is, I take it, that the natural setting of bone by calcification of the granulation tissue must be helped by plenty of lime to form good strong callus, and this takes usually one to four weeks, the osteoclastic action softens the ends of the fracture, and the callus must be well limed before the osteoplastic cells can start to work and make bone.

I conclude with the prescription of plenty of milk, eggs, and generous diet, and the vegetables named above, coupled

with tablets of syrup. ferri phos. co. from the start of the case, presuming, of course, the best possible surgical skill.—I am, etc.,

REGINALD LARKIN, M.D.Lond.,
Southwark, June 10th. M.R.C.S.Eng., L.R.C.P.Lond.

THE RATIONALE AND PRACTICE OF CHEMIOTHERAPY.

SIR,—Leaving aside the fact that prejudice pervades the editorial on "The Rationale and Practice of Chemiotherapy," it is so full of misstatements that I must ask you to be so kind as to publish the following:

1. The compounds intramine and ferrivine were practically unknown to chemists. At the commencement of my work I sought the assistance of some of the leading chemists in this country, and even wrote out the formula of intramine for them, but none were familiar with it. It was purely by accident that I discovered Hofmann's work after I had succeeded in manufacturing the sulphur compound, and I doubt very much whether the phrase "long known to the chemists" would have found place in your columns if I had not in my first paper mentioned Hofmann's work. I am so far unfamiliar with any written description concerning the preparation of the ferric salt of sulphanilic acid.

2. I particularly alluded to a case of interstitial keratitis which had proved refractory to intramine for two reasons—(*a*) to show the influence one drug has in assisting the action of another; (*b*) to bring to light the far from uniform results obtained by salvarsan in glossitis, as I had shown a case, which healed up at once with intramine, having proved refractory to salvarsan.

3. So far as ferrivine is concerned, it is obvious why the results obtained with it are not uniform, and one of my objects in reading the papers was to seek assistance to remedy the defects, needless to say without success.

4. Professor Bayliss was the only speaker who criticized my theoretical views. It is true that one other speaker associated himself with Professor Bayliss. Professor Bayliss was ignorant of my previous work, and admitted that he had probably misunderstood what I had said, as my paper was only an abstract. To show how true this is, I will review the remarks made by the speaker in question.

"It is unfortunate that oxidation and reduction processes should have been selected as the basis for the theory of chemiotherapy." That such a statement should have been made is more than unfortunate. The light thrown on so-called scientific methods pursued by many shows the deplorable state of scientific research. Do our foremost scientists select the basis on which they found their theories? If so, I must plead guilty to entirely wrong methods. I did not select my basis; indeed, it was forced upon me by plain deductions from observed facts. A point on which I should like to lay special stress is this: however unfortunate my selection, it enabled me to produce at the first attempt a drug in some respects superior to those produced by Ehrlich in several hundred attempts, in spite of his having the services of the very best German chemists at his command.

"Of all processes taking place in the living body they are those the mechanism of which is most obscure." Doubtless it is unfortunate to disperse any of this obscurity, or even to endeavour to do so. However obscure these processes may be there is no doubt of their occurrence, and there is no doubt that they are the most important processes which take place in the living body. Must we therefore rule out of consideration oxidation and reduction processes in the body simply because their mechanism is obscure?

Maybe the sense in which the term "oxidase-reducase" system is used is not clear. It could not have been so if it gave the impression that one system should simultaneously be both oxidizing and reducing in its action on a given body. I desired to convey the impression that such a system was ready to act catalytically as either an oxidizer or a reducer, or to activate oxidizing or reducing reactions. As I have pointed out, the *Leucocytozoon syphilidis* has some phases which may be put out of action more quickly by oxidation, and others more quickly by reduction; it is therefore clear that simultaneous oxidation and reduction of the same body is not even desired or expected, even if it were possible.

". . . but as adsorption had been shown to depend on surface, an increase in size of the molecules would tend to diminish their adsorptive power."

Professor Bayliss evidently assumes from this that the amount of protein in the serum is constant, and that aggregation of the smaller particles takes place. If this were the case, the specific surface—that is, the total surface—would obviously be less, but from ultra-microscopic examination I have proved that the protein particles in a syphilitic serum are greater in size and number than those in a normal serum. Unfortunately the ultra-microscopic method is not always available, so I proved the point in other ways. Syphilitic serums contain more protein than normal serums, more adsorbed amino-groups and more adsorbed electrolytes—note the readiness with which syphilitic serums clot. My new test for syphilis with glacial acetic acid lanthanum sulphate depends entirely upon the differences just mentioned.

Furthermore, the larger the molecule the greater the number of small molecules it will form when it breaks down, an action which follows the administration of the chemiotherapeutic remedies, hence their adsorptive capacity would be increased.

There is the further remark that "adsorption depended on active oxygen." I was naturally only referring to adsorption *in corpore*, not to adsorption in general, as Professor Bayliss probably thought, otherwise he would not have mentioned the adsorption of carbon dioxide by charcoal—an example far from apropos of the subject matter.

For the adsorption between the lipoid-globulin molecules of the serum on the one hand and those of the parasite on the other, the presence of active oxygen is absolutely necessary, for without active oxygen the adsorptive power of the former would be diminished, since any interference with the active oxygen renders such molecules less emulsoid, and may even cause precipitation. In my book, *Links in a Chain of Research on Syphilis*, many other proofs are given for my statement that adsorption *in corpore* is dependent on active oxygen. Indeed, if my work be carefully studied it will be found that all my deductions have been built upon an experimental basis, and that none are contradictory or contrary to observed facts.

Before the meeting was held I am sure it was general opinion that arsenic was essential and that it killed the parasites directly, points which were deduced by Ehrlich from pure theory and built up on an unsound and illogical experimental basis. My object was to show that the *rationale* of Ehrlich's chemiotherapy was totally incorrect, that arsenic was not essential, that the death of the *Spirochaeta pallida* was not the main point to aim at, as it is not the sole cause of the disease, and that sulphur and iron compounds could be prepared which had an antisyphilitic action—an action which would be greatly enhanced by co-operation to improve the compounds so far prepared. Iron and sulphur are non-toxic elements, they are mutually complementary, and their use simulates and stimulates processes that are naturally occurring in the body. Hence I think I may say that my object was attained, with the one exception of succeeding in obtaining any co-operation.

The last sentence in the editorial contains the following words: "Any reasonably safe therapeutic procedure will in this country secure an unbiassed trial, especially if there is sound experimental evidence in its favour." This statement surely should not have been made, for it should be assumed that any trial would be unbiassed. The mere making of the statement inevitably leads to the belief that there exists in the writer's mind a trace of suspicion that the trial may not have been entirely free from bias, a view held by the majority who are interested in this subject. So far as the sound experimental evidence is concerned, I think the cases I exhibited and the 400 odd injections I have given prove beyond doubt—namely, that ferrivine and intramine have a powerful antisyphilitic action, and that the sulphur compound is complementary to the use of any metallic compound, and therefore should be employed in every case of syphilis.—I am, etc.,

London, W., June 16th. J. E. R. MCDONAGH.

FEES OF LOCUMTENENTS.

SIR,—I trust medical agents are not to be allowed to dictate rates of remuneration for the profession. We do not want the old sweated "locumtenent" back again, but

men whom we can trust and who deserve to be properly treated. The Clyde "rollers" make £20 a week!—I am, etc.,

Edinburgh, June 17th. JAMES CAMERON, M.D.

THE DR. JAMES B. BIRD MEMORIAL FUND.

DR. JAMES B. BIRD, of Carlisle, was universally respected by his colleagues and highly esteemed by the people among whom he worked; he died of influenza last April, at the age of 47, and had been unable to make due provision for his family. A committee was formed in Carlisle to raise a memorial fund for the education of his children, and we are informed that it now amounts to £1,623 1s. 6d. At a recent meeting of the executive committee it was decided to close the fund at the end of the present month, and three trustees were appointed to administer it. Further subscriptions should be sent at once to the Honorary Treasurer, Mr. James Nelson, Bank of Liverpool, Limited, Carlisle. The following subscriptions from members of the profession have been received since the list published in our columns on May 20th:

	£	s.	d.
Dr. A. C. Burrows, Carlisle	5	5	0
Dr. Helm, Carlisle	5	5	0
Dr. Farquharson, Carlisle	5	5	0
Dr. R. Fawcitt, Broughton-in-Furness	2	2	0
Dr. C. W. Graham, Carlisle	3	3	0
Dr. Macdonald, Carlisle	3	3	0
Dr. H. J. Robinson, Kirkoswald	1	1	0
Dr. Edwards, Carlisle	3	3	0
Dr. Logan, Ecclefechan	4	4	0
Dr. Alfred Cox, London	1	1	0
V.P.R.C.S.E.	10	10	0
Dr. Doughty, Dalston, Cumberland	3	3	0
Mr. C. Balfour Paul, Carlisle	8	8	0
Dr. Edington, Penrith	2	2	0
Dr. Dodgson, Southwaite	2	2	0
Dr. J. R. Burnett, Keswick	1	1	0
Dr. John Brown, Blackpool	0	10	6
Dr. T. C. Guthrie, Tunbridge Wells	10	10	0
Dr. Shepheard-Walwyn, Wetheral, Cumberland	5	5	0
Dr. C. T. Street, Crosby-on-Eden	2	2	0
Major Butterworth, Carlisle	2	2	0
Dr. Rufus E. Evans, Newcastleton	2	2	0
Dr. G. B. Muriel, Whitehaven	3	3	0
Dr. J Barclay, Wetheral	2	2	0
Dr. Donald, Carlisle	5	5	0
Dr. C. Crawford-Aitken, Carlisle	5	5	0
Lieut. P. A. Bennet Clark, R.A.M.C.	2	2	0
Lieut. Walter Mercer, R.A.M.C.	2	2	0

The Services.

THE AUXILIARY R.A.M.C. FUNDS.

THE Provisional Committee appointed at the meeting at the Royal Army Medical College on June 1st to consider and report on the steps which should be taken to establish a fund for the benefit of the auxiliary branches of the R.A.M.C., will present a scheme at the meeting to be held at the Royal Army Medical College on Monday next, at 2.45 p.m., under the chairmanship of the Director-General.

The committee will recommend the formation of two independent funds for the auxiliary R.A.M.C. Forces, one a benevolent fund for the orphans of officers and the other a relief fund for the widows and orphans of the rank and file. It is recommended that the funds should embrace the three auxiliary branches of the corps, and that both funds should be administered by the same committee, which should be representative of the three auxiliary branches—namely, Special Reserve, Territorials, and those holding temporary appointments in the R.A.M.C.

The scheme of the committee seems to us, as we have indicated elsewhere, so defective that we hope it may be withdrawn and a wider reference given by the meeting on Monday to a committee strengthened by the inclusion of more men who have an intimate personal acquaintance with the hardships and difficulties suffered by medical men engaged in civil practice, and by the addition of representatives of existing medical funds and organizations. We therefore refrain from publishing further details of the provisional scheme.

The Provisional Committee adopted the following resolution at its meeting on June 15th:

> To recommend the general meeting to appoint a committee to report to a further meeting on the possibility of the establishment of a loan fund to help medical officers of the auxiliary forces who are in temporary difficulties on returning to their civil practices.

EXCHANGE.

CAPTAIN 2nd Line Field Ambulance (T.F.) wishes an exchange with M.O. attached to Base Hospital abroad, or Ambulance Train.—Address, No. 2400, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Universities and Colleges.

UNIVERSITY OF LONDON.

MEETING OF THE SENATE.

The University and the War.—At a meeting of the Senate on May 24th a letter was read containing the King's congratulations upon the important part the University was taking in connexion with the war, not only in actual military service but in science and research, and expressing his sympathy with the losses sustained.

Recognition of Teachers.—The following were recognized as teachers at the institutions and in the subjects indicated:—St. Mary's Hospital: Mr. F. A. Juler (ophthalmology), Mr. C. A. Pannett (surgery).

Dental Schools.—It was resolved that the Royal Dental Hospital and London School of Dental Surgery, and the National Dental Hospital and College forming part of University College Hospital Medical School, be continued as schools of the University in the Faculty of Medicine (in dentistry only).

Withdrawal of Scholarships.—It was decided to reduce the number of university scholarships to be awarded in the summer of 1916 from nineteen to twelve.

Staff Examiners for Medical Degrees.—The following were appointed staff examiners in the subjects of examinations for medical degrees:—*Anatomy:* Professor R. W. Reid; *Bacteriology:* Professor R. T. Hewlett; *Chemistry:* Dr. H. F. Morley; *Forensic Medicine and Hygiene:* Drs. E. P. Manby and F. J. Smith; *General Biology:* Mr. M. Davenport Hill; *Medicine:* Professors Norman Dalton and Arthur J. Hall; *Mental Diseases and Psychology:* Drs. R. H. Cole and W. H. B. Stoddart; *Obstetric Medicine:* Professor W. C. Swayne and Dr. G. F. Blacker; *Pathology:* Professors F. W. Andrewes and J. Martin Beattie; *Pharmacology:* Professor R. B. Wild; *Physics:* Dr. Sidney Russ; *Physiology:* Professor D. Noel Paton; *State Medicine:* Drs. T. M. Legge and R. K. Brown; *Surgery:* Professor W. F. Haslam and Mr. William Turner; *Tropical Medicine:* Professor F. M. Sandwith and Dr. C. W. Daniels.

Physiological Laboratory.—The annual report of the Physiological Laboratory Committee for 1915 stated that the normal work of the laboratory had been hampered by want of funds and absence of workers on military duty. The resources of the laboratory had again been held at the disposal of the War Office.

UNIVERSITY OF EDINBURGH.

OWING to the large reduction due to the war in the number of students attending, it has been resolved not to hold separate graduation ceremonials in arts and medicine, but a combined graduation ceremony for arts, science, medicine, and the other faculties, which will take place on July 11th. Sir James A. Ewing, K.C.B., the newly-elected Principal, is expected to take part.

At the last meeting of the University Court Dr. McKenzie Johnston was appointed a governor of the Fettes trust for the residue of the term of office for which the late Principal had been elected.

It was announced that Mr. Balfour had expressed the wish that the sketch portrait of himself by the late Sir George Reid, which Sir William Turner had bequeathed to him, should at once find a place in the University. The Court accepted the bequest, and thanked the Chancellor for his considerate regard for the University.

The Combe trustees have agreed that Dr. W. G. Smith shall be reappointed to the lectureship in psychology for a further period of five years from September 30th next.

UNIVERSITY OF ST. ANDREWS.

THE Senate has resolved to confer the honorary degree of LL.D. upon Dr. James Musgrove, Bute Professor of Anatomy in the University 1901–14, and now Emeritus Professor. Professor Musgrove graduated M.D.Edin. in 1888.

ROYAL COLLEGE OF SURGEONS IN IRELAND.

Election of President and Officers.—The annual election of officers took place on June 6th as follows:—*President:* William Taylor; *Vice-President:* John B. Story; *Secretary of the College:* Sir Charles A. Cameron; *Council:* William Stoker, Sir Charles A. Cameron, Sir Lambert H. Ormsby, Richard D. Purefoy, Henry Gregg Sherlock, Sir Thomas Myles, D. Edgar Flinn, Sir Arthur Chance, Shepherd McC. Boyd, Sir Robert H. Woods, R. Bolton McCausland, Thomas E. Gordon, Edward H. Taylor, F. Conway Dwyer, Alexander J. M'A. Blayney, R. Charles B. Maunsell, Trevor N. Smith, William Ireland Wheeler, Sir C. Arthur Ball. Mr. William Taylor, the new president, has a long association with the Royal College of Surgeons, in the schools of which he studied; he became Licentiate in 1893, and a Fellow in 1898, and in 1902 graduated in arts and medicine in the University of Dublin. Mr. Taylor is surgeon to the Meath Hospital and County Dublin Infirmary, and visiting surgeon to the Cork Street Fever Hospital. For the past two years he has been Vice-President of the College.

Lord Kitchener.—The College has adopted a resolution expressing its profound regret at the great loss the empire has sustained by the death of Lord Kitchener.

Obituary.

DR. ALFRED FREER, J.P., born at Stourbridge, Worcestershire, on March 15th, 1829, died at his residence in that town on June 10th, aged 87. His family had held leading positions in Stourbridge since 1547, and he himself was one of the fourth generation of doctors who lived at Green Close, Stourbridge. His great-grandfather, John Freer, was one of the first four surgeons appointed to the General Hospital, Birmingham, in 1779. Dr. Alfred Freer entered King Edward's School, Stourbridge (where Dr. Samuel Johnson had been an usher) in 1836. He began life as apprentice to a doctor at Birmingham, studying at the same time at Queen's College, and serving as a dresser at the General Hospital. In 1850 he took the diploma of M.R.C.S. and went, in order to study midwifery, to Dublin, where he became L.M. in 1851. At the end of that year he was working in the Paris hospitals, and witnessed Louis Napoleon's *coup d'état*. In 1852, after taking the L.S.A., he entered into partnership with his father and brother, and remained in practice for sixty-four years, for he was working only a few months ago at the Stourbridge dispensary during the temporary incapacity through accident of the resident surgeon, Dr. Lloyd Francis. Dr. Alfred Freer was a very active member of the British Medical Association. He was president of the Birmingham Branch in 1890, and became chairman of the Dudley Division, and representative for the combined Bromsgrove and Dudley Divisions. Until recently he was a very regular attendant both at the Branch and the Division meetings. Dr. Freer was the first president of the Stourbridge District Medical Society, Birmingham. Thirty-four years ago he was appointed a county magistrate. He took a great interest in church questions, Conservative and Unionist politics, and, latterly, in matters concerning the war. Dr. Freer was likewise known as a geologist, archaeologist, and chess player. He was held in universal esteem in the neighbourhood, where he laboured and was so long known and beloved that representatives of all phases of life attended in great numbers at his funeral on June 15th.

DR. FREDERICK JOHN WADD died at his residence at Richmond, Surrey, on June 12th, aged 71. He studied medicine at St. Thomas's Hospital and the University of Aberdeen, where he graduated M.B., C.M. in 1866; he also took the diplomas of M.R.C.S. and L.S.A. in the same year. Dr. Wadd was for many years the family physician to the Duke and Duchess of Teck at White Lodge, Richmond Park, and attended Queen Mary at the birth of the Prince of Wales; his grandfather was surgeon-extraordinary to George IV. He was for twenty-two years a member of the Richmond Town Council, and held the position of Chairman of its Health Committee for seventeen years; he was also one of the oldest supporters of the Royal Horse Show. A service was held on June 15th at St. Mathias's Church, Richmond, where the Queen was represented by the Hon. Alexander Nelson Hood, and the burial took place at Richmond Cemetery.

DEPUTY SURGEON-GENERAL EDWARD MALCOLM SINCLAIR, A.M.S.(ret.), died at his residence in South Kensington on June 14th, aged 84. He was born in 1832, the son of Dr. Malcolm Sinclair, and took the diploma of M.R.C.S. and the degree of M.D.St. Andrews in 1853. Entering the army as assistant surgeon on March 28th, 1854, he became surgeon in 1866 and surgeon-major in 1873, retiring as deputy surgeon-general on December 19th, 1888. He served in the Crimea in 1854–56, and was present at the siege and capture of Sebastopol, receiving the medal with a clasp and the Turkish medal. He served also in the Indian Mutiny from 1857 to 1859, when he took part in the operations in Oudh and in Bandalkhand, including the actions of Chanda, Umirpur, and Sultaupur, and the capture of Lucknow, and received the Mutiny medal and Lucknow clasp. He was principal medical officer of the lines of communication and base in the Transvaal war of 1881, and was mentioned in dispatches.

Medical News.

THE annual general meeting of the Poor Law Medical Officers' Association of England and Wales will take place at its offices, 9, Copthall Avenue, London, E.C., on Friday, July 7th, at 4 p.m.

DR. A. E. LARKING, honorary secretary of the Buckinghamshire Division of the British Medical Association and of the Buckinghamshire Panel Committee, has been appointed a magistrate for the Borough of Buckingham.

THE Duchess of Marlborough will give the Lady Priestley memorial lecture of the National Health Society, on Thursday next at 5 p.m., at the Royal Society of Medicine, 1, Wimpole Street, W. The subject of the lecture is "Saving the Children." The chair will be taken by Sir James Crichton-Browne.

THE King has granted Dr. James Russell Watson of the English Baptist Mission Hospital, Tsing-chow-fu, China, licence and authority to wear the order of the sixth class of the Excellent Crop conferred upon him by the President of the Republic of China, in recognition of valuable services rendered.

THE annual meeting of the National Training School for District Midwives will be held, under the presidency of the Lord Mayor of London, at the Mansion House, on June 27th, at 3.30 p.m. The meeting will be addressed by Lord Balfour of Burleigh, Sir Dyce Duckworth, M.D., Lady Betty Balfour, and Dr. Barbara Tchaykovsky, and a statement will be made by the honorary secretary, Miss Alice Gregory, from whom, at the British Hospital for Mothers and Babies, Woolwich, tickets of admission can be obtained on application.

AT no period of its history has Great and Greater Britain stood in greater need for the preservation of child life than at the present time, and a great responsibility now rests upon those who have the care of the children of to-day. The formation of associations under whose auspices a number of centres have already been established to spread information as to the best means of preventing infant mortality has done much within recent years to reach the wives and mothers of the poor. The National League for Physical Education and Improvement (4, Tavistock Square) has recently published a small book, price 3d., entitled *To Wives and Mothers*, compiled for the most part from leaflets carefully drawn up by expert workers among the poor, in which a vast amount of sound advice is contained as to the preparations and precautions that the expectant mother must observe, and as to the proper management of the infant during the first weeks or months of life. The vital and far-reaching importance of skilful upbringing during the first five years of life, whether it be regarded from the physical or the mental standpoints, can hardly be exaggerated, but it is not by any means as fully recognized as it should be. A short section on character training inculcates some points which deserve the respectful consideration of mothers in all ranks of society, to whom we can cordially commend the pamphlet.

AT the monthly meeting of the Central Midwives Board on June 15th, when Sir Francis Champneys presided, a letter was read from the M.O.H. Chatham forwarding a circular letter addressed to all midwives in that district inquiring whether they would be willing to supply the names and addresses of expectant mothers with a view to facilitating antenatal visiting in connexion with infant welfare work, and asking whether the Board was taking any action. The Board replied to the effect that no midwife had any right to give any information concerning her patients to any one except with the consent of the patient, which, if possible, should be expressed in writing. The Board agreed to co-operate with the Board of Education in approaching the Treasury with a view to the provision of grants in aid of the training of midwives. The Board accepted with regret the resignation of Dr. W. Crump Beattey, one of the examiners of the Newcastle centre, and appointed in his place Dr. W. L. Ruxton. University College Hospital, London, was granted recognition as a training school. At special meetings of the Board on June 14th, 15th, and 16th, fifteen fresh penal cases were heard, and in six the midwives were struck off the roll. In three cases the Board decided to take no action. Apart from the usual charges of dirt, ignorance of the pulse and temperature, etc., there were several of neglect in cases of serious rupture of the perineum, puerperal fever, and ophthalmia. Reports on four adjourned cases were heard; they were all satisfactory. The names of two women were removed from the roll on their own application.

Letters, Notes, and Answers.

CORRESPONDENTS not answered are requested to look at the Notices to Correspondents of the following week.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London;* telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (advertisements, etc.), *Articulate, Westrand, London;* telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Medisecra, Westrand, London;* telephone, 2634, Gerrard. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

H. D. asks whether at temperance hospitals where no brandy, etc., is given as a stimulant, absolute alcohol or any other substitute is prescribed, and if so in what doses.

M.D. writes: I want to find a place for two months or so for a strong healthy young woman who expects her accouchement in the early autumn. She will, I understand, be received into Queen Charlotte's Hospital, but not until shortly before the expected birth of the infant. In the meantime she is unable to remain in her present situation or to go home. Any suggestions for assistance will be gratefully received.

HARVEST BUGS.

M.D. asks whether there is any reliable prophylactic, or failing that remedy for the bites of harvest bugs.

*** The harvest bug, *Leptus autumnalis*, is the larva of a species of trombidium, usually *Trombidium holosericeum*, and was described by Dr. Shipley in one of his articles on insects and war (BRITISH MEDICAL JOURNAL, October 31st, 1914, p. 750). The article was republished in *The Minor Horrors of War*, p. 87 (Smith, Elder, and Co. Price 1s. 6d. net.). The irritation is caused by the mite implanting its mouth parts in the skin, preferably in the hair follicles or sweat glands. Dr. Shipley says that they may be "dislodged by the application of petrol or benzine, both very inflammable, and the itching they cause allayed by the application of acid or alcoholic lotions." In the late Dr. Radcliffe Crocker's *Diseases of the Skin*, we read, "The treatment is by mild parasiticides, such as are used in scabies, naphthol or weak sulphur, or white precipitate ointment. The soaking and scrubbing necessary for scabies are superfluous here."

ANSWERS.

ACNE ROSACEA.

D. writes: If "S.," who asks as to the treatment of acne rosacea, will use this ointment and push the application almost to blistering, he will cure his patient. R Hyd. iod. rub. gr. iv; att. rosae ♏ ij; vaselin. ½ oz. Apply with a brush once a day in the early morning, so that the severe smarting will have passed off before bedtime. He must return to the attack when and as often as may be necessary.

LETTERS, NOTES, ETC.

WILLIAM LAWRENCE'S "TREATISE ON HERNIA."

MR. J. Y. W. MACALISTER (Secretary, Royal Society of Medicine, 1, Wimpole Street, W.) writes: In my note which you kindly inserted, asking for the help of your readers to find a book entitled *Treatise on Hernia*, the name of the author was given as "Henry Lawrence" instead of, as of course it should be, "William Lawrence."

THE FRESH AIR CRAZE.

DR. D. W. SAMWAYS (Exeter) writes: Is it not time more discrimination were shown by the medical and nursing professions in the advocacy and employment of fresh air? When healthy people or invalids sit out of doors they choose a sheltered place, as free as possible from draughts, but in our wards it is the habit to open windows on all sides as generously as possible, without any consideration of the consequent draughts. Some friends of mine were lately present at a concert given to the patients at the Brompton Hospital. So great was the draught that music put down on the piano was actually blown off, while two assistants were required to hold in place any piece of music which was being played.

If debilitated consumptives profit by the fashion for draughts, which I doubt, why treat all patients as consumptives? Is the whole body a respiratory orifice? I find it almost impossible to prevail upon sisters to close the windows on the weather side of a ward when a cold wind is blowing, and open those on the lee side. They have always been taught that there cannot be too much fresh air.

Who of us suffering from colds, laryngitis, bronchitis, rheumatism, neuralgia, or insomnia would sit or sleep in a draught? Yet our patients have to suffer these things because of this fresh air fetish.

It has been established that pure air is eminently desirable for all. Fresh air, which is now almost synonymous with cold, draughty air, seems to me responsible for more ailments than it averts.

In the high Swiss health resorts the consumptive is supplied at night with still air by the protection of heavy curtains, and with warm air by hot pipes, the aim being to provide pure air, not cold draughts.

I maintain that the medical profession should cease the advocacy of fresh air. It is as risky to advocate fresh air as fresh water, both of which have killed or disabled numberless unwary people. It is pure air and pure water which alone are desirable, the pure air being reasonably warm and free from draughts. Till sisters and nurses are taught this, railway station ventilation will probably continue to be their ideal.

VALUE OF TUBERCULIN TREATMENT.

DR. JOHN MACKEITH (London, W.) writes: Although "Medicus" (JOURNAL, June 10th, p. 840) states that his "present opinion is that if I had continued tuberculin I would not now be penning these lines," yet I consider his present very satisfactory state is much more to be attributed to the immunizing effect of the tuberculin he had than to "silence treatment aided by the climate of Maderia," although these doubtless acted beneficially on his condition. One of the effects of tuberculin is to produce an active hyperaemia at the focus of disease, resulting in the formation of antibodies. This hyperaemia may sometimes, in cases of laryngeal tuberculosis, be attended by temporary aggravation of the symptoms, with an apparent exacerbation of the disease, as is observed on laryngeal examination. This action, if not excessive, leads to healing and cicatrization. Late and large doses of tuberculin, given in the course of treatment, do not produce hyperaemia, and yet result in the formation of antibodies. In my experience there is no method of treating laryngeal tuberculosis that can in any way compare with the favourable results obtained, in any series of cases, by tuberculin treatment. I have before me the notes and charts of three cases of pulmonary tuberculosis (tubercle bacilli present), with extensive laryngeal affection, all treated with tuberculin alone, and without rigid "silence treatment" or any climatic effect, other than that to be obtained in the neighbourhood of London, with perfectly satisfactory results to the patients. The result of treatment may not always be evident at once, because in cases of ulceration there is a mixed infection, and though tuberculin may have done its work well, time is often necessary for the slow recovery from the other infections. As one who has used tuberculin in large doses, both at the tuberculin dispensary and at the Central London Throat, Nose, and Ear Hospital, I can testify to the absence of any real danger in the use of tuberculin in the hands of an expert.

A CASE OF ABNORMALLY LARGE PLACENTA.

DR. H. WESSEN HUSBANDS (Taunton) writes that in a case of *ante-partum* haemorrhage, to which he was called by a midwife, he found the vertex distending the vulvar outlet, and the child was even born. Owing to the continuance of haemorrhage the placenta was delivered quickly, when the bleeding was controlled and the uterus became hard and firm and remained so. It was the ninth pregnancy, the labour being premature and the child stillborn. The weight of the fetus was 6 lb. 11 oz. The weight of the placenta was 6lb. 14 oz. The patient had a normal recovery.

VALLAURI PRIZE.

THE Royal Academy of Sciences of Turin offers the prize founded by Ernesto Vallauri to the scientific investigator who in the four years from January 1st, 1915, to December 31st, 1918, shall have published the best work on any of the physical sciences, that expression being interpreted in the largest sense. Works offered in competition must be printed. The prize, which is of the value of £104, is open to foreigners.

A CORRECTION.

MAJOR RUSSELL COOMBE, R.A.M.C.(T.F.) (Exeter), writes: Will you kindly allow me to use your columns to correct an error in the Director-General's recent circular? I am not, as there described, consulting surgeon to the Devon and Exeter Hospital.

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AN EPITOME OF CURRENT MEDICAL LITERATURE.

MEDICINE.

1. Isolated Vestibular Neuritis following Typhoid Inoculation.

C. HIRSCH (*Deut. med. Woch.*, August 19th, 1915) records the case of an army surgeon, who had previously been well. The first inoculation was well tolerated, but twenty-six hours after the second inoculation the patient became exceedingly giddy and developed severe vomiting, which was renewed on the slightest movement of the head. During the following night the pulse and respiration were abnormally slow, there were spasmodic contraction of the muscles of the jaw, and a cold sweat and numbness of the fingers were accompanied by tinnitus. The patient diagnosed embolism, thrombosis or abscess of the cerebellum on the left side, and asked for an operation. A more detailed examination showed that the right tympanum was reddened, and that the patient tended to fall over to the right on walking. An ophthalmologist could find nothing amiss with the eyes, and diagnosed haemorrhage into the left labyrinth. Four weeks after the development of the first symptoms the patient still felt giddy on turning his head or eyes, especially on rotation to the left. There was marked ataxia on rapid movement, the patient was incapable of much exertion, and was easily excited by small doses of alcohol or coffee. The nose and ears seemed perfectly healthy, Romberg's sign was negative, and there was no spontaneous nystagmus nor deafness. Wassermann's reaction was negative. The author came to the conclusion that the inoculation had caused neuritis of the vestibular branches of both auditory nerves, the nerve on the right side being most affected. On May 3rd—that is, three months after the onset of the symptoms—the patient could resume his surgical work at home. Only when he moved his head quickly did he still experience slight giddiness.

SURGERY.

2. Military Surgery.

American.

CRILE (*Annals of Surgery*, July, 1915) narrates the history, equipment, and experiences gained at the Lakeside Unit of the American Hospital for wounded situated in Neuilly, a suburb of Paris, comprising a service of 150 beds, with an average performance of from five to ten operations per day. Compared with civil practice, these operations were simpler in technique, but offered more difficult problems as to the proper procedure in the more severe injections. Nitrous oxide-oxygen was the ideal anaesthetic, as many of the operations were relatively short and performed upon exhausted, exsanguinated, and extremely septic patients, and the advantages of this anaesthetic became so obvious that the anaesthetists and gas were utilized by other services in critical cases. While the stage of induction was found to be longer and more difficult in the French soldier than in the average American civilian, a relatively smaller amount of the anaesthetic was required after induction was completed, and a smooth and even anaesthesia was more easily maintained. Almost every wound was infected, asepsis and antisepsis having failed in military surgery, the type of infection depending in a measure on the type of injury, the state of the soldier, and the interval elapsing before the wound could be adequately treated. Shell and shrapnel wounds produce a larger zone of contused and devitalized tissue having a low resistance to infection than do rifle wounds, and as most cases of gas gangrene follow shrapnel and shell wounds, these are promptly treated by clearing out foreign bodies, excising the devitalizing tissue, and providing good drainage. Many observers advise warm moist dressings, immersion in hypertonic solutions of potassium citrate and sodium chloride, and in severe knee and thigh injuries immersion of the patient in a bath, while apparently better results followed open-air treatment after a certain stage was reached, and exposure to electric light has been advocated. The best treatment up to date appears to consist in hot packs, immersions in hot water, free incisions, good drainage, and physiologic rest. Death from gas gangrene is caused by structural injury of the brain, adrenals, and liver, and the best hope for recovery apparently rests with prompt amputation, leaving the stump wide open, and applying hydrogen peroxide. Next to infection, shock and exhaustion with emotional strain were probably most fatal, and in many cases very slight injuries caused great shock and even death. The best treatment for shock under the difficulties encountered in engagements is to give morphine. For compound fractures Blake's splint and the Balkan splint are among the most efficient. Stress is laid upon the urgent need for research into the control of infections, and in organization it would appear that the best results will be achieved by placing the Army Medical Service in charge of the field service, since these surgeons, whilst relatively untrained in surgical practice, are highly trained in organization, transportation, etc., and placing the heavy surgical work in charge of civilian units composed of surgeons untrained in military organization, etc., but highly trained in the actual care of the patient, and by having attached to each base hospital a board of consultants, composed of the most expert surgeons, responsible for the practical work and the formulation of general principles.

German.

L. ELOESSER, of San Francisco (*Journ. Amer. Med. Assoc.*, December 4th, 1915) gives his impressions of German military surgery as observed in the army reserve hospital at Ettlingen, Baden. Nearly all the wounded treated there came from the west front, where, owing to the nature of the fighting, most were shell and shrapnel wounds. Infantry and artillery fire cause different kinds of injuries. A man hit by an infantry bullet is either out of danger quickly or dies quickly, according to the part involved. If struck by a piece of shell, unless the wound is altogether superficial, he is an object of anxiety for weeks or months. There are exceptions, of course, to this general rule. The modern small calibre bullet by no means always makes a small smooth wound. The nature of its path is determined partly by the character of the bullet and partly by the part struck. Whether the bullets are pointed, like the English, French, and German bullet, or more snubbed, like the Russian missiles, does not seem to make much difference. The real difference is due to whether the points are smooth or have been notched or dented or otherwise deformed, either by the soldiers themselves or by more concerted arrangements, for Eloesser claims that there have been instances of manufactured dum-dum bullets, made in factories, taken from captured soldiers. A bullet with a nicked or hollow point no longer merely pierces. Evidence of a dum-dum bullet can only be got from an unspent bullet itself. The shape of the bullet is also of importance and the position of its centre of gravity. If the latter is near the rear it causes the bullet to turn in its course, when the point meets resistance, and make a more destructive track. Eloesser credits the French copper encased bullet with being most humane and the English bullet perhaps the worst, with its anterior core of aluminium and centre of gravity far back. If a bone is shattered each splinter acts as an additional projectile. Injuries to the skull are of three kinds—tangential, penetrating, and perforating. Most injuries seen at the base hospital are of the first kind; the other patients usually die before they get there. Although the wounds usually heal kindly, the patients are often permanently incapacitated from organic or functional brain disturbances. In case of a patient surviving a penetrating wound, a roentgenogram is advisable, as bullets or deep indentations and splinters are often found. Late abscesses often develop, and may be difficult to diagnose. The osteoplastic closure of Garré, with a flap of bone shavings from the outer lamina and periosteum, is sufficient for defects on the vault of the skull. When there is a deep defect in the forehead, a free transplant of bone may be used. Chest wounds do not give as little trouble as is generally supposed. Gunshot wounds of the extremities have increased in gravity with the increased power of the modern small arm; nerves and vessels cannot evade the modern bullet. The nerves are liable to be involved in scars, affecting their functions, and operation may be desirable. Fractures from the small calibre bullet, even with wide shattering of the bone, usually heal promptly. The question how to transport fracture patients is still unsettled; there is no time for applying plaster splints on the battle field. It is the wounds from shells and artillery projectiles which make one realize what war is.

Shells used in the beginning of the war broke up into large pieces or lumps. Another kind, which Eloesser says are of American manufacture, burst into jagged slivers with saw edges. Shell wounds are always infected; it may not be severely but generally is and seems to be getting worse as the war goes on, as Eloesser supposes, from the dirtier uniforms and the more infected soil. Tetanus has largely disappeared with the use of prophylactic injections. The dictum of "hands off" is not valid for shell wounds, as is being realized more recently. Gas phlegmons are of several types and should be laid wide open. The pus appears too quickly to be followed up, and in order to prevent its travelling upward it is well to cut the main subcutaneous veins across some distance above the wound. The after-care is one of the most difficult things in the surgery of these cases. On September 5th the Ettlingen Hospital was made a purely orthopaedic institution and run in connexion with the school for the one-armed and an institution for the care and training of cripples, and wound cases were not received. Every conceivable method is used to train the disabled for some future useful occupation, but Eloesser seems to think there will be many shirkers and pension grabbers after the war, and that it is quite likely that some law to keep cripples from idleness will be required.

3. Trench Foot.

A. LONGIN (*Ann. de derm. et syph.*, Tome v, No. 11, October, 1915) classifies "trench foot" in three degrees: (1) A primary stage of oedema, to which the term "succulent" has been applied by neurologists. The colour of the part is white, sometimes cyanotic, and, if lymphangitis is superimposed, of a roseate hue. The oedema, though apparently superficial, involves all the structures of the part affected, so that the joints tend to become distended, and the patient may afterwards be severely handicapped by the laxity of his ligaments when the fluid is absorbed. (2) In the second stage the epidermis is distended by the presence of bullae, containing a serous or blood-stained fluid. These vary in size from that of a pea to a nut, and the more blood-stained the fluid the more should one suspect a deep-seated origin, and the more likely the possibility of gangrene supervening. (3) The third stage is that of gangrene, which may be either insular and superficial, or deep and usually leading to the loss of one or more toes, most often the little and big toes, and not infrequently stopping short at the proximal phalanges. The lateral aspects of the feet are more prone to gangrene than the central, and the line of demarcation may quite frequently therefore be V-shaped. Almost invariably the sole suffers more than the dorsum. The quantity of oedema present in these cases would appear to determine whether the supervening gangrene shall be of the dry or moist variety, and, according to Longin, the latter and far more serious complication may sometimes be avoided by incising and dehydrating the tissues with currents of hot air. The etiology is almost invariably the same. The men have been standing for hours at a time in water or mud, and in practically every case of a temperature considerably above the freezing point, and to these factors the tight application of puttees is doubtless contributory. The resulting vascular spasm and paralysis are the immediate causes of the affection, which has pathological resemblances to Raynaud's syndrome. The symptoms are commonly a feeling of distension at first, and the patient may not even be incapacitated from marching for a time. Presently, however, shooting pains and sensations of heat develop in the feet, and become more acute from day to day, so that the patient is forced to report sick. In the stage of gangrene the affected parts are, of course, completely insensitive to every form of stimulus, and there is usually acute pain at the line of subsequent demarcation of dead from living tissue. The treatment of this very disabling condition is of great importance. Asepsis should be undertaken systematically in every case, especially when the oedema is marked. Footbaths in warm water, followed by gentle friction with alcohol or ether and compresses with Hoffmann's anodyne (spt. etheris nit.), are very useful in the early stages. The hot air douche followed by these compresses has been of the greatest benefit in the author's cases. The temperature should be only a little above that of the blood. In a few cases in which the burning sensations were paramount, cooling lotions had to be exhibited for a time. In cases of moist gangrene the air douche finds its most potent application, and it was most useful in stimulating ulcers left after separation of sloughs, and in causing them to heal. The surgical removal of dead tissue must be entirely governed by a due consideration of each individual case. A minimum of loss should always be aimed at, and it is emphasized that the length of treatment should be a purely secondary consideration. Longin's method of amputation has been largely by means of carbonization with air at a temperature of 700° to 750° C. and not with the knife, which, in his opinion, tends to open up fresh channels of infection, and the possibility of further gangrene and danger to life. Finally, the prophylactic administration of tetanus antitoxin is recommended in all cases of moist gangrene, as the bacillus finds an acceptable nidus in the devitalized tissues, and several cases of the disease have already been reported.

4. Magnesium Sulphate Solution for Septic Wounds.

MORISON AND TULLOCH (*British Journal of Surgery*, October, 1915) from experience in the Northumberland War Hospital, where wounds are often seriously infected before the patients are admitted, and where neither asepsis is possible nor antiseptics of any service, report favourably on magnesium sulphate, which by virtue of its being absorbed with difficulty has certain advantages over other salts used for cleansing wounds by osmosis. It also appears to have the desirable property of interfering with the digestive activities of pus, and inhibits to some extent the growth of certain bacteria commonly found infecting wounds. The authors employ a satured solution of the salt. Forty ounces of magnesium sulphate are dissolved in ten ounces of glycerine and thirty ounces of water, and sterilized in an autoclave. In recent injuries the wound is freely opened up, the foreign body removed, and the whole wounded surface swabbed with pure carbolic acid. The ends of fractured bones are treated in the same way, and loose but attached fragments are not removed. The wound is gently packed for twenty-four hours with gauze wrung out of carbolic lotion (1 in 20) and antiseptic wool applied as an outer dressing. At the end of this time the wound is dressed; the gauze plug removed, the wound is syringed out with magnesium sulphate solution, and *loosely* packed with sterile gauze wrung not too hard out of the same solution, and the whole area of the wound is then covered with a double layer of gauze or lint saturated with solution over which a piece of jaconet, and then cotton-wool, is placed, the whole being fixed loosely by a bandage. In the case of wounds of later date, where sepsis and suppuration are fully established, no carbolic acid is applied, but the magnesium sulphate treatment is commenced at once. Even in the worst cases, the dressings are only changed every twelve hours. Within two or three days the pus has almost disappeared, the sloughs begin to separate and the surface of the wound presents a bright red colour. The granulations never became flabby or oedematous, and the epithelium grows freely from the edges of the wound. The treatment may be continued with advantage until the entire wound is healed.

5. Paralysis of Tongue from Traumatic Division of Hypoglossal Nerves.

MORESTIN (*Soc. de Chirurg. de Paris*, June 23rd, 1915) records the case of a soldier who eight months ago was wounded by a bullet which passed from one side to the other in the infrahyoid region. The tongue is completely paralysed, and no cicatrices are present; its surface and contour are normal. On palpation, no induration can be felt; indeed, the tongue is uniformly very supple and flaccid. Taste and tactile sensibility of the organ are perfect. In the act of swallowing solids the tongue appears to take no part; the patient has to throw his head back and push the bolus backwards with his finger; saliva is swallowed with great difficulty, and there is constant slobbering. The patient can speak slowly in a sticky voice, but he is quite easy to understand. No change has occurred during five months' observation; and prognosis is held to be very bad. The lesion is attributed to division of both hypoglossal nerves by the bullet.

6. War Deafness.

MARCEL LERMOYEZ, in a paper on war deafness, an abstract of which appears in the *Progrès Médical* for December, 1915, says there are two kinds of traumatic deafness, direct and indirect. The true war deafness is the indirect. The hearing is destroyed by a sudden inrush of air into the auditory meatus which violently strikes the tympanum; it is not the noise that causes deafness, but the "wind of the bullet." The best chance the labyrinth has of escaping is when the chain of ossicles does not work well. The prognosis varies according to the resistance of the drumhead. If the labyrinthine disturbance is slight the patient will recover his hearing without local treatment, and will be fit for service in a month. If it is serious, the man will remain unfit for military duty. Strychnine may hasten the resolution of certain curable forms of

inflammation of the auditory nerve, provided it is given in sufficient doses. Two or three injections of 2 mg. may be given daily, but not for more than a fortnight at a time on account of the danger of cumulative action. Electricity is useless.

THERAPEUTICS.

7. Pulsatory Pneumatic Massage.

BERGONIÉ (*Arch. d'électr. méd.*, October, 1915) describes a new method of physiotherapy, which he calls "pulsatory pneumatic massage," for the treatment of the after-effects of wounds. He states that if an appliance, such as the pneumatic drum of Marey's chronograph—that is to say, a closed cavity with rigid walls, save for one only, which is supple and elastic—be placed on the dorsal surface of a stiff or ankylosed hand or on any cicatricial lesion in such a manner that the elastic portion covers the part, it is possible by rhythmic variations of pneumatic pressure transmitted to this appliance from an air pump to massage mechanically the cicatricial stasis which is sometimes the despair of surgeons and physiotherapeutists. The drums or receivers, which may be of various sizes and surfaces to suit different parts of the body, are mechanical excitators similar to the excitators used in electrotherapy, but act by alternations of pressure instead of by alternations of potential. Several of them may be served from the one source of pneumatic pressure by means of a series of branch pipes, and the volume of air passing into each may be regulated by the length and diameter of the pipes as well as by a system of faucets. The transmitting arrangement is an air pump, having a cylinder proportional to the number and capacity of the receivers. The pressure may be as great as 1 kilogram per square centimetre, or even more, or it may be so slight as scarcely to brush the skin. The frequency of alternation varies with the number of movements of the piston, but 120 a minute appears to be the best. This elastic and rhythmic pulsatory pressure acts on the vessels, on the circulation, and also on the cells, stimulating nutrition and tissue exchanges. It has been found specially useful in the impotences which follow splinter fractures of the hand, in stiffness of finger-joints, in oedemas and trophic troubles, in tendinous and muscular coalescences, etc.; in fact, in all the secondary lesions and sequelae of wounds in which massage ordinarily is efficacious. The author does not bring forward this method as a means of replacing manual massage performed by an instructed hand, but it has the advantage of being capable of application simultaneously to a number of cases.

8. Treatment of Mutism following Injuries of War.

MARAGE has studied more than a hundred cases of mutism following directly on injuries in warfare (*Compt. rend. de l'Acad. des Sciences*, No. 20, November 15th, 1915). As a sequel of a cerebral concussion, without apparent lesion, caused by the explosion of a large shell, the patient, after a loss of consciousness varying in duration from a few minutes to many days, fails to recover his speech. In 64 out of 100 cases this mutism disappeared spontaneously at the end of some weeks, but in the remainder all kinds of treatment completely failed. The mutism is often accompanied by vertigo and distressing tinnitus, and all the patients complained of very violent frontal headache. Insomnia is the rule, and often for two or three months there may be only an hour or two's sleep at night. There is more or less marked defect of memory; not only are all events following the battle forgotten, but the patients cannot write a letter, owing to their defect of memory. Auditory hyperaesthesia is so great that sounds which are barely perceptible to a normal ear are described as intolerably loud. During the last five months Marage has treated 5 cases of complete deaf-mutism. As he found that their respiration was very defective, he gave them respiratory exercises. At the end of fifteen days their expiration was of good amplitude, but they could not speak, however much they tried. In addition the larynx and sides of the neck were massaged by a mechanical or electrical vibro-massage instrument, both the intrinsic and the extrinsic laryngeal muscles being stimulated. After four days the patients began to whisper simple words—for example, "papa," "mamma," "good morning," etc. After eight days' treatment they could repeat phrases written down for them. After three weeks two patients spoke naturally. But a third had such an extremely defective memory that he could not repeat a word of three syllables, owing to the fact that after repeating two syllables he had forgotten what the third was; however, he improved later on. Marage thinks that this simple mode of treatment is worthy of use in military hospitals.

9. Powdered Potassium Permanganate in Wounds.

BELIN has for more than ten months treated all cases of wound seen by him during the war by the application of potassium permanganate in the form of powder (*Soc. de Pathol. Comparée de Paris*, October 12th, 1915). Before the war he showed how surprisingly quickly wounds cicatrized under this treatment. In the very worst wounds of warfare this followed within fifteen days. He finds that the permanganate soon ceases to be a very powerful antiseptic, and becomes a cicatrizing agent. The powder gives up its oxygen unceasingly to the plasma of the wound and to its cells. The pain becomes quite bearable. This treatment has the virtues of being easy to apply; the powdered permanganate is non-toxic, antiseptic; its action is durable; it adheres to the wound, favours its cicatrization, destroys bacteria, and protects the patient from infection by anaërobic microbes, such as those of tetanus, gaseous gangrene, and haemorrhagic septicaemia.

10. Painting with Methylene Blue Solution in Facial Erysipelas.

NOBÉCOURT (*Bull. et mém. Soc. Méd. des Hôp. de Paris*, December 2nd, 1915) has treated a large number of soldiers affected by facial erysipelas by painting with a 5 per cent. aqueous solution of methylene blue. He finds it very efficacious and even better than ichthyol or tincture of iodine; several of his colleagues have testified to its value. The solution is painted over the erysipelatous area, and also over the neighbouring unaffected skin for a distance of 1 cm. every night and morning; no dressing is necessary. The effect is very marked on the pain; in half an hour to an hour the patients have a sense of well-being, and forthwith their pain ceases. Digital pressure gives no pain, or at most a disagreeable sensation when applied over the scalp. No hypnotic nor anodyne drugs are needed. The swelling and oedema subside rapidly, and even when the eyelids have been closed by the oedema, the latter passes away almost entirely within two or three hours. The course of the disease is cut short, so that in most cases it is arrested on the first or second day; only rarely is the treatment necessary for more than two or three days. The slight staining of the bed and body linen can be avoided by due precautions. After cessation of the treatment the blue colour of the painted skin persists for several days, up to a maximum of six or eight, and it disappears spontaneously or by washing.

11. Mercury Salicylate in Syphilis.

KENT NELSON AND E. A. ANDERSON (*Journ. Amer. Med. Assoc.*, November 27th, 1915) report their experience with mercury salicylate in the treatment of syphilis. The patients were prisoners in the military prison at Fort Leavenworth, Kansas, and the facilities for observation and care were excellent. Each patient had had at least two double plus serum reactions at different dates before the investigation, and none had had previous treatment of any character. Unfavourable influences that could affect the treatment were thoroughly excluded, and no other treatment was used. The dose in all cases was the same—1½ grains. At first it was repeated every seventh day, and after this was found to be too short an interval, every fourteenth day, and at times a longer interval was allowed between doses. None of the patients were salivated, though they were kept saturated with the drug, and all completed their daily quota of work. Sore buttocks were complained of sometimes from the injections, but inflammation was kept down, and no serious objections were made by the patients. Objective symptoms yielded to the treatment, but much less rapidly than to salvarsan, and the authors do not think that a combination of the two favourably affects the treatment. While they hesitate to say that the mercury salicylate treatment of syphilis is altogether valueless, they hold that it has little influence over the disease.

12. Anaesthesia by the Rectum in Thyroidectomy.

LATHROP (*New York Med. Journ.*, November 13th, 1915) claims favourable results by the practice of oil-ether colonic anaesthesia in thyroidectomy where freedom of movement is essential and where the ether cone is absent.

The anaesthetic can be applied in bed, and the unconscious patient removed to the operating table and the thyroid excised with little or no conception of what has taken place. The pulse and respiration remain, as a rule, normal. The rapid pulse of hyperthyroidism remains quick, but does not increase as when fear is added to the patient's troubles. The cases under Lathrop were thyroidectomies (excepting one ligation) for (1) hyperthyroidism, 15 cases; (2) parenchymatous thyroid tumours, 38 cases; and (3) colloid and cystic tumours, 58 cases. There was only one death, in a case of exophthalmic goitre, three days after operation, the only instance in which ligation was performed instead of thyroidectomy. The preliminary injection which Lathrop now uses is morphine, ¼ grain; paraldehyde, 2 fluid drachms; and ½ oz. of ether with the same amount of olive oil. This mixture is given forty minutes before operation. Lathrop finds paraldehyde superior to chloretone. He describes the special technique in full, and notes that to Gwathmey of New York belongs the credit of working out the scheme of oil-ether colonic anaesthesia.

13. The Treatment of Laryngeal Tuberculosis.

DISCUSSING the respective merits of operative and conservative treatment of laryngeal tuberculosis, T. BEGTRUP-HANSEN (*Ugeskrift for Laeger*, September 23rd, 1915) suggests that the laryngologist is apt to take too narrow a view of the disease, and to forget that the ultimate fate of the patient in most cases depends on the pulmonary tuberculosis which is almost invariably associated with laryngeal tuberculosis. During the last two years the author has observed, at the Silkeborg Sanatorium, 63 cases of laryngeal tuberculosis the diagnosis of which was based on ulceration, infiltration, and granulation. Only in 2 cases was the laryngeal disease a more important factor than the pulmonary disease. In 55 cases the pulmonary disease was in the third, and in 8 cases it was in the second stage. In 21 cases in which the laryngeal disease was for the most part severe the patients were much debilitated and febrile. The treatment of the laryngeal condition could therefore be only palliative, and the only operative treatment was an occasional amputation of the epiglottis for dysphagia or an injection of alcohol into the laryngeal nerves. Both these measures can, however, be undertaken by the physician with some knowledge of laryngology. In 29 cases of slight laryngeal disease, that is, limited infiltration and superficial ulceration, the course of the laryngeal disease ran parallel with that of the pulmonary disease; and the only treatment necessary, in addition to sanatorium treatment, was the local application of menthol and lactic acid. Among the remaining 13 cases there were four in which the steadily progressive pulmonary disease was associated with extensive laryngeal disease, for which energetic operative treatment might have been beneficial locally. But the author confined the treatment to the application of menthol and lactic acid, as he foresaw the patients would die in any case. In the nine other cases there was no improvement in the laryngeal disease, although there was a steady improvement in the pulmonary disease. But when more energetic measures were adopted, including the use of the galvanocautery and the curette, there was, on the whole, an improvement in the laryngeal condition. With this experience the author concludes that radical operative treatment should be confined to a very few cases, and should be undertaken only when the condition of the lungs is not hopeless. He has seen several cases in which a too active treatment of the larynx has been detrimental to the lungs and the patient's general health. Within the last few years he has seen three advanced cases of laryngeal tuberculosis greatly benefited by an artificial pneumothorax, the ulcerations in two cases healing completely.

PATHOLOGY.

14. Typhoid Spine.

RUGH (*Amer. Journ. of Orthopaedic Surgery*, October, 1915) reports a case of typhoid spine with autopsy findings, this being the first recorded pathological report upon such a condition. The disease extended over a period of six or seven years. The patient, a woman aged 32, during delirium jumped from a third-floor window on to a cement sidewalk, suffering concussion of the brain, fracture of the right acetabulum, tearing of the ligaments of the right knee, and compound fracture of the right os calcis. Four and a-half weeks later pain first appeared in the spine and grew gradually worse until at the end of four months a slight prominence of the lumbar vertebrae was noticed. About twice a year abscesses formed about the right hip until her death, nearly eight years later, and cultures from the pus were negative until the last abscess nine months before death, when it yielded a pure culture of the typhoid bacillus. At the *post-mortem* examination it was found that the intervertebral disc between the third and fourth lumbar vertebrae was missing and was replaced by a bony overgrowth closely resembling grossly the bony tissues of the vertebral bodies. Microscopically there was complete absence of cartilaginous tissue which was replaced by dense connective tissue having a rich blood supply, and bridging the space normally occupied by the intervertebral disc. Cultures from the spleen were sterile, and those from the gall bladder were negative for the typhoid bacillus, but contained a pure culture of the *Bacillus coli communis*. The inflammation involved the intervertebral disc rather than the bodies of the vertebrae, and was of a more or less destructive character, though probably it was considerably influenced by the fixation treatment employed.

15. Non-infectious Bone Atrophy.

GREY AND CARR (*Johns Hopkins Hosp. Bull.*, November, 1915) have published an experimental study on the factors responsible for non-infectious bone atrophy. The experiments were conducted on thirty-eight rabbits and nine dogs. In both series of animals the bones entering into the formation of the ankle and wrist joints proved to be the most suitable for such a study. Structural changes in the cortex and medulla were followed by means of Roentgen rays. The limb opposite that which was experimented upon was used as a control. As frequent examinations were made in each case it was possible to follow closely the appearance and the progress of atrophic changes. Grey and Carr have arrived at the following conclusions: (1) A destruction of the sensory nerves to a part occasions no direct local atrophy of bone. A destruction of the motor nerves, on the other hand, leads to a certain amount of atrophy. This, however, is indirectly the result of inactivity or disuse, and is directly proportional to the degree of paralysis present to the part. (2) Local venous congestion leads directly to no recognizable changes in the structure of bone. Local anaemia due to injuries of the arterial supply, except in an extreme degree, likewise occasions in bone atrophy so long as the part remains functionally active. (3) Inactivity atrophy may appear very soon after immobilization of a limb as early as the fourth or fifth day in rabbits. It is probably due to a decrease or to an absence of the functional stimuli necessary to the normal nutrition of bone. (4) Immobilization retards the process of repair in bone injuries.

16. Haemophilia Calcipriva.

HESS (*Johns Hopkins Hosp. Bull.*, November, 1915) investigated a sporadic case of haemophilia in a Jewish child 6 years of age. No other member of his family was a "bleeder." He was also subject to ichthyosis, though there was not, as is usual, any family history. The investigations were extended to a boy aged 9 subject to typical hereditary haemophilia. Hess notes that this typical hereditary bleeding was not associated with a deficiency of calcium. As other investigators have shown, Hess found that the addition of calcium to the blood *in vitro* delayed rather than hastened coagulation. A deficiency could not be established by quantitative determinations of the calcium in the blood, and a metabolism study showed that the exchange of lime salts, as well as of numerous other inorganic and organic substances, differed in no way from normal. The atypical instance, though sporadic, had all the other symptoms of classical haemophilia, and so could not be considered to be a case of purpura. The patient showed a definite deficiency of the calcium in the blood from a functional point of view, the addition of a weak solution of calcium markedly hastening the clotting of the blood. Quantitative determinations of blood calcium also showed a deficiency compared with the normal. A study of the boy's general metabolism further detected a negative balance of lime, which became positive when lime salts were added to the diet. Thus the sporadic case seemed to be a distinct type of the disorder—an instance of haemophilia calcipriva. Hess doubted if haemophilia were an absolute entity, if disorders were included under that name where delayed clotting of the blood, a normal number of platelets and a negative "capillary resistance test" were all present.

AN EPITOME OF CURRENT MEDICAL LITERATURE.

MEDICINE.

17. Cardiac Insufficiency.

BARRINGER AND TESCHNER (*Arch. of Int. Med.*, November 15th, 1915) discuss the treatment of cardiac insufficiency by a new method of exercise with dumb-bells and bars, utilizing the circulatory reaction to exercise as a test of the heart's functional capacity. With dumb-bells weighing from 3 to 25 lb. each and steel bars varying from 10 lb. upwards in weight it is possible to measure approximately the number of foot-pounds of work performed in each exercise. In treating patients the routine followed consisted in giving 50 to 100 foot-pounds of work with a pair of 5 lb. dumb-bells by pushing them alternately above the head, the pulse and blood pressure being taken before and every minute after the exercises. If they showed a normal type of reaction (that is, the systolic blood pressure becoming raised and the pulse accelerated, but both then rapidly falling to and below the figures noted before work began) in a few minutes another piece of work was given, increased by 50 or 100 foot-pounds through using heavier dumb-bells. By this means sooner or later an amount of work was reached which was followed by a delayed rise in blood pressure, thus showing that the functional capacity of the patient's heart had been exceeded. Many patients showed a cardiac efficiency of only a few hundred foot-pounds, contrasting strikingly with the efficiency of a normal heart, which may measure as much as 7,000 foot-pounds performed in two minutes. Having found in a given patient the number of foot-pounds which produced a delayed rise in blood pressure the daily exercise for the next seven days was limited to 100 foot-pounds less, this being given each day from four to six times with five to ten minutes' rest in between. At the end of the seven days the heart's functional capacity was again tested, and if it had increased, the work of the following week was kept just below the amount which produced a delayed reaction. As the cardiac efficiency increased various other exercises were added to the initial one of pushing the dumb-bells above the head, exercises which utilized the trunk muscles and increased the number of foot-pounds performed without tiring excessively any one group of muscles. It was found that one week's training of a normal person increased markedly the quantity of work he could do before a delayed reaction was produced. The cases selected for treatment were ambulatory patients with chronic valvular or myocardial disease and varying stages of decompensation, any acute process, history of recent emboli, or persistently high blood pressure being considered a contraindication for the exercise treatment. Nine of the thirteen patients treated showed marked improvement, apparently due to the exercises, for, with one exception, no other treatment was given, and three of those who did not improve suffered from mitral disease with marked decompensation and very low initial cardiac and respiratory capacities. The chief feature of the exercises is their concentration, each series of movements lasting from 30 to 120 seconds, followed by a rest of from five to ten minutes. By spreading the same amount of work over from ten to fifteen minutes, so that the patient does the same amount of foot-pounds in a longer period of time, a much slighter effect on the pulse and blood pressure is produced. Although the number of cases treated is small this system of exercises is a valuable adjunct to existing measures for treating cardiac insufficiency, and the validity of the post-exercise blood pressure test of the heart's functional capacity is established.

18. Acute Raynaud's Disease with Paralysis.

AMONG the victims of the earthquake in the Abruzzi on January 13th, 1915, a number of cases of paralysis of the limbs, combined with trophic lesions resembling those of Raynaud's disease, were admitted to hospitals at Rome. R. ALESSANDRI and G. MINGAZZINI (*Il Policlinico*, Rome, 1915, xxii, sez. med., 433) give an account of eighteen of these, divided into three classes, in accordance with their severity, as fatal, grave, or mild. The fatal cases were six in number, the patients were aged from 17 to 32, and had remained buried under fallen masonry for from thirty-six to seventy-two hours; the paralysis was segmental in type, and with or without pain and disturbances of sensation; the Raynaud's disease took the form of cyanosis, oedema, bullae containing blood-stained fluid, and the supervention in three cases of gangrene demanding amputation of an arm or a leg, or of both. Three of the patients died of adynamia cordis in two, five, and six days respectively. The second group—the grave cases—contained three patients, who had lain exposed in the ruins for from thirty-six to seventy-two hours, and were aged 16, 18, and 37 respectively. Gangrene supervened in each case, and amputation of a leg was performed in two, while the third patient, who had been buried face downwards with her arms crossed under her chest for thirty-six hours, had both forearms amputated at the proximal third a fortnight later. These patients all exhibited segmental areas of hypoaesthesia or anaesthesia, and in two the paralysis was also segmental in type; the third patient, an alcoholic man, exhibited tenderness of the sciatic and popliteal nerve trunks. The remaining nine cases were classed as mild, and were mostly females aged from 14 to 50, who had been exposed under the ruins for from eight to seventy-two hours; some had suffered trauma, others from the cold. Here the Raynaud's symptoms had not gone beyond the stage of asphyxia as a rule, though bullae and necrotic patches appeared in a few instances. In general the legs were more involved than the arms; in a few cases there was marked and very acute neuritis of certain nerve trunks (ulnar, median, radial, superficial peroneal, sciatic, lateral popliteal, crural) with the characteristic distribution of paralysis, anaesthesia, and trophic changes (that is, Raynaud's symptoms). In the first group—the fatal cases—the stocking-and-glove distribution of the nervous lesions indicated a "functional" or "hysterical" type of origin; in some of these patients examination of the nerves of an amputated leg showed no abnormality of the nerve fibres. The arteries of the amputated limbs in two other cases showed no abnormality, but were thrombosed in a third patient. Discussing the pathogenesis of this acute form of Raynaud's disease with paralysis, the authors connect it with the severe psychical shock caused by the earthquake. The patients in the first two groups showed rapid pulse and abnormally low blood pressure, and it is assumed that the Raynaud's symptoms were due to shock to the vasomotor system. Even in the mild cases with evidence of peripheral neuritis this factor probably was involved, as the Raynaud's symptoms disappeared before the evidence of neuritis. The authors can draw no very definite conclusions as to the way in which the trophic and vasomotor nervous systems were upset by the earthquake; they quote Cassirer's views on the question. They note that all their patients had been exposed to cold and to mechanical obstruction of the circulation by pressure, as well as to psychical shock. They argue that the adynamia cordis from which three of their patients succumbed was due to sympathetic vaso-constriction of the coronary arteries.

SURGERY.

19. Surgical Treatment of Gastric Crises in Tabes.

GEORGES PATRY (*Revue médicale de la Suisse Romande*, June 20th, 1915) deals with the surgical treatment of gastric crises and describes a case treated by himself by Guleke's modification of Förster's operation. The two predominant symptoms in gastric crises are pain and vomiting, and, according as the greater importance attaches to the pains or the vomiting, so the nerve chiefly implicated is the splanchnic or the vagus. Förster attaches the chief rôle to the sympathetic nerve, on the grounds that (1) the pain is the dominant factor, is the earlier symptom to appear, and is of longer continuance than the vomiting; (2) the origins of the splanchnic are in intimate relation with the intercostal nerves, and therefore the existence of the zones of anaesthesia or hyperaesthesia, frequently present in the epigastric region, is readily explicable on this hypothesis. Moreover, the pains are not confined to the stomach, and the presence of girdle pains localizes the lesions to the posterior roots corresponding to the rami communicantes which give origin to the great splanchnic. On this theory the vomiting is due to secondary reflex action. These clinical

facts are supported by the anatomical conclusions of J.-C. Roux, and more recently by those of Tinel. According to these workers the primary lesion is a posterior root lesion. The roots are found to be surrounded by masses of leucocytes, and there is a great excess of fibrous tissue. This lesion causes irritation both of the intercostal nerves and the sensory fibres from the splanchnic which reach the cord by way of the posterior roots. The object of the majority of recent operations has therefore been to interrupt the nervous conductivity above the irritative lesion. Exner alone attacks the pneumogastric nerve. He performs a double vagotomy, reaching the nerves through an incision above the umbilicus, and at the same time performs a gastro-enterostomy to combat any danger of future disturbance of gastric motility. Of 6 cases treated by Exner himself 3 only were benefited. Kuttner performed Exner's operation in a case already treated on Förster method in which the crises had ceased after the first operation but vomiting had persisted, but he found the vomiting much aggravated after the vagotomy. Förster ascribes the failure of double vagotomy to improve the motor lesions to the section being below the irritative lesion, and proposes in cases in which vomiting persists after radicectomy, to attack the jugular ganglion; in spite of the difficulties of technique, Kuttner has finally performed this operation with success. Förster and Kuttner's operation upon the posterior roots is carried out as follows: A laminectomy is performed at the level of the roots; these are resected to the length of about 1 cm., and the dura mater and the more superficial layers of the wound are carefully closed. The difficulties and complications of the operation may be considerable. To avoid the danger of shock it has been proposed to perform it in two parts, the preliminary laminectomy being performed on the first day and the opening of the dura mater and resection of the nerve roots a few days later. This method has, however, the great disadvantage that where clear vision is of the greatest importance, the field of operation is obscured by the presence of clots, and it should therefore be reserved for patients in an advanced state of cachexia. To avoid haemorrhage, which may be a serious complication, the cutaneous incision should be exactly in the middle line and the muscles should be rasped near to the bone, instead of being cut. Moreover, as soon as the laminae have been separated, the wound should be plugged for from five to ten minutes with hot wet compresses. Another frequent complication is the escape of cerebro-spinal fluid, which may not only obscure the operative field, and also even cause immediate fatal results, but may in other cases lead to the formation of a fistula with all the chances of infection of the meninges. To prevent it the patient should be placed with the head hanging down, and Debrey recommends that the spinal canal should also be plugged above and below. In Guleke's modification of Förster's operation the dura mater is not opened. Guleke separates the anterior and posterior roots, which may be differentiated from one another by their differing volume, the anterior root being about twice as thick as the posterior, and then resects the posterior root. This operation has the reputation of being a difficult one to perform, but the author employed it in the case he himself treated and found it easy. Another modification of Förster's operation is Fränke's method of attempting to reach the ganglion and the root without laminectomy by tearing the intercostal nerves. According to Sauvé and Tinel, the tearing of the nerves must be rough, not slow and progressive, in order to bring about a profound disturbance of the cells of origin. The author sees no reason to prefer the uncertain method of Fränke to the operations which directly attack the posterior roots, but Sauvé and Tinel's modified operation is worthy of trial. Of 13 cases treated by Fränke's method, 2 died as the result of the operation, 2 had immediate and 3 speedy relapses, 5 were dismissed from the clinic as cured, but were not followed up; 1 only was known to have remained eleven months without a relapse, and could be considered as cured. Gambier has collected records of 60 cases of Förster's operation or its modifications by Guleke, Sicard, and Dumarest; with the author's own case the total number is thus 61. Of these, 19 died, 2 of independent illnesses, the remainder as a result of the operation. Of the remaining 42, in 2 the crises were more severe after the operation, in 1 they were not influenced, in 2 they were slightly improved, in 5 the crises disappeared for a time but afterwards recurred, and in 1 (the author's) the condition was improved, but the patient was lost sight of; in 4 crises persisted, but were less severe; in 27 there was so great improvement that it might almost be regarded as a cure. Thus the results were: Deaths, 31.1 per cent.; unfavourable, 16.4 per cent.; good, 52.5 per cent. These results are not brilliant, but, considering the previous hopelessness of the condition, they constitute real progress, and, in the author's opinion, it is infinitely preferable to run the risk of an operation than to leave the crises untreated. He considers Guleke's operation to be the best.

20. Traumatic Paralysis of Brachial Plexus without Fracture or Dislocation.

Levison (*Hospitalstidende*, September 8th, 1915) records the case of a workman, aged 34, who was a moderate drinker and had hitherto been well. Falling from a load of straw on to a stone, he struck his shoulder in trying to hold himself with his left hand. He was put to bed and fell asleep, but next day he noticed that his left arm was paralysed, swollen, and anaesthetic. On his admission to hospital, complete paralysis of the left arm, as well as anaesthesia of the hand, of the forearm, and of most of the outer side of the upper arm, were found. The arm was swollen, and the skin of the thumb gangrenous, and the reaction to degeneration was noticeable a week later. The fact that even the most careful examination did not disclose a fracture or dislocation was a most extraordinary feature of this case, in view of the completeness of the paralysis. The author assumes that the cause of the paralysis must have been a haemorrhage into the plexus itself, a view which was confirmed by the shortness of the interval between the accident and the development of the paralysis. Though the sensory disturbances were less, the paralysis was as complete as ever two months after the fall. The atrophy was most evident in the deltoid and in the supra- and infra-spinatus muscles. The paralysis affected the three main branches of the brachial plexus, as well as the musculo-cutaneous, axillaris, and suprascapular nerves. The nerves to the rhomboids, to the pectoralis major and minor, as well as the subscapularis had escaped injury, in spite of the origin of the latter from the plexus being below that of the subscapularis, which was paralysed. It was proved by *x*-ray photographs of the diaphragm, instillation of adrenalin and cocaine into the eye, and the administration of pilocarpine, that the phrenic and sympathetic nerves were uninjured.

21. Limitations of the X Ray.

Cotton (*Amer. Journ. of Orthopaedic Surgery*, October, 1915) discusses the limitations of the *x* ray in the diagnosis of certain bone and joint diseases. While the *x* ray is invaluable as an aid in the diagnosis of many bone and joint conditions, and the roentgenogram is pathognomonic of some diseases, there are different diseases in which the roentgenograms are similar, and the diagnosis must therefore be made with the aid of clinical data. In the early diagnosis of certain pathological conditions of bones and joints—for example, tuberculosis and acute infectious osteomyelitis—the *x* ray is not of great value, because of the fact that changes in the structure and in the density of the bone have not been produced, and further the *x* ray cannot be relied upon always to give a true picture of the nature and extent of the pathological process. These limitations of the *x* ray in the diagnosis of diseases and extent of pathological processes are due to the fact that the roentgenogram does not show differences in the composition of substances of the same density.

OBSTETRICS.

22. Management of Placental Stage of Labour.

Polak (*Surgery, Gynaecology, and Obstetrics*, November, 1915) strongly objects to any disturbance of the normal mechanism of the separation of the placenta. It will come away spontaneously if the normal mechanism be not impeded—by manipulation, for instance, of the uterus before the clinical evidences of separation are apparent. *Post-partum* haemorrhage is best avoided by respecting the physiological processes, while manipulation causes partial detachment and predisposes to flooding. The normal mechanism of placental delivery is that described by Schultze, and the Duncan mechanism only occurs in low implantation of the placenta and when untimely and vigorous manipulation has been practised. The placenta may be retained in the uterus for hours or days provided that it be attached or completely detached, which ensures that the bleeding will be negligible. Sepsis is dependent on penetration of the uterus by the hand or instrument through infected passages and not upon retention of the placenta. Manual extraction is only admissible in partial separation with haemorrhage. In retention without haemorrhage the cord should be cut off close to the cervix and the case watched until the signs of separation are

apparent, when the placenta may be expressed by Credé's method under anaesthesia. Invasion of the uterus through the vagina is fraught with danger from infection, and on exploration, should the placenta not be found presenting at the internal os, infrapelvic delivery should not be attempted, and the fetus should be extracted through sterile avenues by suprapubic extraperitoneal hysterotomy. When the adhesion is so great that its removal entails the digging out piecemeal of the placenta, then excision of the placental site or hysterectomy is demanded.

23. The Relation of Menstruation to Conception.

WITH a view to applying the peculiar conditions of the war to the study of the problems of conception, P. W. SIEGEL (*Deut. med. Woch.*, October 14th, 1915) has investigated the relation of menstruation to conception among pregnant women whose husbands had been mobilized. He assumed that when, for example, a married woman menstruated last on July 31st, 1914, and when her husband left her on August 6th for active service, and did not return to her till pregnancy was well advanced, it followed that conception had occurred between July 31st and August 6th. Similar opportunities for fixing the date of conception with considerable accuracy were given when a husband's leave at home lasted only two to eight days. At the Gynaecological Hospital of the University of Freiburg the author questioned 100 married women who had become pregnant under the mentioned conditions. He did not attempt to find out the dates on which coitus had actually taken place, and he confined his inquiries to the date of the last menstruation and of the husband's leave at this period. In all these cases the fruitful coitus could only have occurred within the first twenty-one days after the last menstruation. The author shows by a table that conception was most frequent on the sixth day after the beginning of the menstruation. From this day to the twelfth or thirteenth day after the beginning of menstruation the incidence of conception remained at a high level, but from the thirteenth to the twenty-first day it showed an abrupt fall, and from the twenty-first day onwards complete sterility supervened. The fall in the curve between the thirteenth and twenty-first day would probably have been still more abrupt had not the statistics included cases in which the husband lived with his wife from the tenth to the twenty-first day after the beginning of menstruation. In ten cases the husband's leave extended only from the twenty-second to the twenty-eighth day after the beginning of menstruation, and in none of these cases did conception occur. The author refers to another series of observations made during the last ten years at the Freiburg Gynaecological Hospital by Wohlers, who has collected all the cases of conception which had occurred within the first five weeks of marriage. He found only 160 primiparae fulfil this condition. In about 65 of these cases the marriage had been celebrated within the last eight days before the beginning of menstruation. In every one of these cases there was only one menstrual period before conception occurred. These cases, and the ten cases observed by the author, show that conception during the last eight days before the beginning of menstruation is a very improbable, not to say impossible, event.

GYNAECOLOGY.

21. Fatal Septicaemia Due to an Intrauterine Pessary.

To illustrate the dangers of the intrauterine pessary, and to warn his colleagues against their use, BRANDT (*Norsk Magazin for Laegevidenskaben*, October, 1915) records the case of a married woman, aged 43, who had undergone five normal confinements, and who had worn an intrauterine pessary for the past six years. It had been changed every six months by a medical man, the last change having been made three months before her admission to hospital. A fortnight before admission she began to suffer from rigors and headache but no abdominal pain. Later she became drowsy and deaf, and suffered from coughing and vomiting. On admission she was drowsy and deaf, the temperature was 40° C., the pulse was 136, and the respirations 40. The urine contained neither pus nor albumin. The lower abdomen was somewhat tender, as was also the uterus on bimanual examination. There was, however, no distension of the pelvic organs. The intrauterine pessary was removed, fomentations were applied, and morphine was given. Two days later she died, and the diagnosis of septicaemia was confirmed by the necropsy, which showed endometritis, enlargement of the spleen, and parenchymatous degeneration of the internal organs. The pessary consisted of two thin springs secured to a plate. It was constructed so that when the springs were brought together and inserted into the uterus their outward pressure kept the pessary in place. In addition to preventing conception, which is its primary object, it irritates the lining of the uterus and provokes a more or less severe endometritis—in its turn a further hindrance to conception. The pressure exerted by the springs ultimately induces necrosis of the tissues in contact with them, and thus opens a channel to infection. The author has removed three similar pessaries from patients in whom they had provoked serious disease. In one case pyaemia and in two cases severe pelvic peritonitis were the sequel to this malpractice. All three patients recovered after a long illness. The author points out that the extensive misuse of this pessary in Germany has already provoked official condemnation from the Government and the gynaecological societies. Owing to its use as an abortifacient as well as a preventive of conception its suppression by law has recently been mooted. Unfortunately this pessary has been popularized also in Norway, where the author has found it in use in country districts as well as in towns.

25. Hydatidiform Mole: Chorion-epithelioma: Bilateral Corpus Lutein Cyst.

FORD (*Amer. Journ. Obstet.*, August, 1915) reports an instance where these three pathological conditions followed each other in a very significant manner. A woman, aged 20, began to bleed in the fourth month of her first pregnancy, then the abdomen increased in size, and at the end of a week she seemed to have reached term. Under anaesthesia about a quart of hydatidiform cysts was removed and the uterus packed with plain gauze. Three weeks later the uterus had not undergone involution and haemorrhages continued; the curettings showed decidual reaction in strips of compact decidua, large masses of decidual cells surrounded by fibrous masses, and a small amount of trophoblast. Within five weeks after delivery of the mole the uterus and appendages were removed. The uterus was uniformly enlarged and the mucosa of the fundus showed large masses of syncytial cells invading the myometrium. Numerous syncytial giant cells were detected, isolated between the muscular fibres. Both ovaries were cystic and of about the size of a fist. The right ovary contained a clear serous fluid, the left held 500 c.cm. of a highly albuminous fluid, clotting to a certain extent and mixed with small old blood clots; at one point on the cyst wall was a minute body, apparently a fairly fresh corpus luteum. On microscopic examination markedly hyperplastic lutein cells were detected in the cyst walls of both ovarian tumours. In a discussion on this case before a society there was difference of opinion expressed as to the causal relation of a mole and a lutein cyst. Vineberg noted that, according to trustworthy recent statistics, 16 per cent. of hydatidiform moles became chorion-epithelioma, and 50 per cent. of chorion-epitheliomas were preceded by hydatidiform moles.

THERAPEUTICS.

26. Typhoid Vaccination.

C. D. HAMILTON (*Journ. Amer. Med. Assoc.*, November 27th, 1915) says that since 1908 it has been observed that a positive Widal reaction always followed a prophylactic dose of typhoid vaccine. While it was now believed that this was not necessary for immunity, but that the patient might still be immune after the reaction had ceased, the presence of the reaction was of the greatest importance if typhoid was suspected. Since 1910, at the Springfield State Hospital, there had been 2,766 prophylactic doses of typhoid vaccine given, and at intervals the Widal test had been made. During the first eighteen months after the vaccination was adopted each patient received three doses at intervals of one week. Only the blood of patients who could give a clear history of never having had typhoid fever was examined. "Blood was taken from patients at the end of one month, six months, twelve months, twenty-four months, thirty-six months, and forty-eight months respectively, with the following results:—One month: ten specimens of blood all gave positive Widal reactions. Six months: ten specimens of blood all gave positive Widal reactions. Twelve months: ten specimens of blood all gave positive Widal reactions. Twenty-four months: ten specimens of blood gave seven positive and three negative Widal reactions. Thirty-six months: ten specimens of

blood gave six positive and four negative Widal reactions. Forty-eight months: ten specimens of blood gave three positive and seven negative Widal reactions. One patient inoculated fifty months ago still had a positive Widal reaction." Hamilton concludes that a positive reaction in any one who has ever been inoculated with antityphoid vaccine is of no value in diagnosing typhoid fever, and the only reliable means of ascertaining the cause of continued fever suspected to be typhoid is by the blood culture and leucocyte count.

27. Treatment of Gonorrhoea with Optoquin.

THE failure of the ordinary antigonorrhoeal drugs in many cases led LEVY (*Berl. klin. Woch.*, October 18th, 1915) to try optoquin, which he gave in 25 cases of gonorrhoea. He was greatly impressed by the efficacy of this drug, which he injected six times a day, the strength of the solution being 1 per cent. Apart from a slight burning sensation, the injection caused no discomfort. Indeed, pain which had previously been troublesome on micturition soon ceased after the injections were begun, and the anaesthetic action of optoquin observed in cases of ulcus serpens of the eye is evidently, therefore, not confined to the eye. A further effect of the drug on the gonorrhoea was the marked diminution of the discharge, which quickly lost its purulent character, and became watery and transparent. Gonococci, which had previously been numerous, rapidly decreased in number, and were difficult to find after the injections had been given for four days. In no case did this treatment provoke complications. Some of the cases were acute, and had not previously been treated in any way. Other cases were chronic, and had undergone the most varied forms of treatment. The chronic cases reacted more satisfactorily to optoquin than the acute cases. In some cases the treatment with optoquin alone was inadequate, and though the discharge diminished and lost its purulent character, and though the gonococci disappeared almost completely, yet there was a little discharge in the morning from the urethra, and the first morning specimen of urine still contained threads. Cases in which an eight days' course of treatment with optoquin failed to effect a complete cure were subsequently treated with protargol, which in a short time completed the cure. One patient was a girl, aged 10 years, who suffered from acute gonorrhoea, and whose profuse discharge contained numerous gonococci. After three days' treatment with optoquin the discharge had diminished much and the number of gonococci was much reduced. After eight days the discharge had completely disappeared and gonococci were no longer demonstrable. A second patient was a non-commissioned officer who had been infected four days earlier, and who had suffered for a day from a profuse discharge which contained numerous gonococci. After two days of the treatment both the discharge and the number of the gonococci were much reduced. On the fourth day there was no longer any discharge but the urine passed in the morning still contained a few threads. A third patient was a young man who had been treated for four weeks by the author with strong solutions of protargol, which had failed to cure the gonorrhoea. After eight days' treatment with optoquin a complete cure was effected.

28. Treatment of Syphilis with Salvarsan Only.

R. KREFTING (*Deut. med. Woch.*, August 12th, 1915) disapproves of the present system of combining mercury with salvarsan in the treatment of syphilis. This blunderbuss pharmacy is the result of the mistakes made in the early days of salvarsan, when unbounded faith in the drug was rapidly followed by failures and accidents. Even Ehrlich had not the courage of his convictions and consented to this polypharmacy. Since 1910 the author has given 3,200 intravenous injections of salvarsan, the treatment, with only three exceptions, being ambulatory. Though his dosage was, as a rule, high, he never provoked alarming symptoms, and, with only very few exceptions, his patients were again fit for work on the day after an injection. The interval between each injection was seldom less than fourteen days. In no case did he observe true idiosyncrasy to the drug, but a few patients developed a scarlatiniform rash after an injection. In 4 cases of secondary syphilis he observed the so-called "nevrorezidiv," but this condition was only transitory, disappearing when the salvarsan was pushed. These nervous phenomena were, in his opinion, undoubtedly syphilitic. Of his 718 patients, 218 were suffering from primary syphilis when the treatment was instituted. Of these, again, 70 were given only one to two injections each, while 148 were given at least three injections. The dosage was 0.5 to 0.6 gram for a man of normal weight, and 0.3 to 0.4 gram for a woman. In one group of 84 cases, in which Wassermann's reaction was negative, the disease was apparently cured, and in no case was a relapse observed. In another group of 61 cases, in which Wassermann's reaction was positive, the treatment was not followed by a single relapse. But there were 3 other cases in which slight relapses followed. Thus, in a total of 148 cases, in all of which at least three injections were given, there were only three relapses. Among the 70 patients who were given only one or two injections only four relapses were observed. The author found neosalvarsan less potent and less capable of affecting Wassermann's reaction than salvarsan. Further proof of the curative effect of salvarsan alone was the fact that 10 of his patients were reinfected with syphilis. He concludes that salvarsan alone is quite as effective as a combination of salvarsan with mercury; and that in the early stages of the disease salvarsan alone, properly administered, almost invariably effects a radical cure. In secondary syphilis, however, salvarsan must be given for a long time, and must be continued even after Wassermann's reaction has become negative.

PATHOLOGY.

29. The Bordet-Gengou Test in Echinococcal Infections.

AFTER a long and detailed account of the various biological tests that have been employed for the diagnosis of echinococcal cysts in the human body, L. C. ZAPELLONI (*Il Policlinico*, Rome, 1915, sez. chirurg., xxii) draws the following conclusions, supporting them in many instances be references to the extensive literature of the subject. The Bordet-Gengou test gave a positive result in 55 of his own 58 cases, and in 88 per cent. of 535 cases of echinococcal cyst collected from the literature. Positive reactions are obtained, apparently, indifferently in the common cases of infection by *Echinococcus hydatidosus* and the rare cases of *E. multilocularis*, as if these two varieties of echinococcal cysts were really but a single species. If the test fails to give a positive result, probably this is due to faulty technique in most cases, though not in all; it appears that in exceptional instances suppuration or calcification of a hydatid cyst may result in the disappearance of echinococcal antibodies from the circulating blood. On the other hand, a good many cases have been recorded by various authors in which a positive result was obtained in patients free from echinococcal infection; here again a faulty technique is generally responsible. Zapelloni concludes that in at least 6 cases, 2 of them his own, an erroneous positive reaction was obtained with an apparently faultless technique; he leaves these instances unexplained. He finds at least 1,600 instances in the literature in which patients apparently free from echinococcal infection gave a negative Bordet-Gengou reaction; and notes that the reaction usually remains positive for at least a month after the operative treatment of one of these cysts. As is well known, the blood of patients with echinococcal cysts usually shows eosinophilia; but this is observed in only 60 per cent. of the cases, and is also often present in a score of other diseases. The eosinophile cells form from 3 to 68 per cent. of the leucocytes, and their number varies widely from time to time in any given patient; hence, as Zapelloni points out, and as has often been stated by previous writers, eosinophilia is practically useless in the diagnosis of hydatid disease. The presence of a precipitin reaction in the blood is equally valueless here, and so is the meiostagmin reaction; the anaphylactic reaction (that is, the analogue of von Pirquet's or Calmette's tuberculin reaction) has proved a failure likewise. Zapelloni has studied the Bordet-Gengou reaction in hydatid disease for five years, and has examined the blood of 114 patients with the infection and 167 without it. He lays great stress on the employment of a proper technique, mentioning eight points of special importance that cannot be dealt with here but should be studied by all who have to apply the test in practice. The specific antibodies occur in the serum of practically all patients with hydatid cysts anywhere in their bodies; if the cyst is in the central nervous system the cerebro-spinal fluid also will contain these antibodies, otherwise it does not. The antibodies are not present in the patients' urine, or in pleural or peritoneal exudates.

AN EPITOME OF CURRENT MEDICAL LITERATURE.

War Number.

MEDICINE.

30. Scarlet Fever in the French Army.

AT a meeting of the Réunion des Médecins de la IV^e^ Armée held on December 3rd, 1915 (*Paris méd.*, January 1st, 1916), FÉLIX RAMOND and GUSTAVE CHAMBAS read a communication on scarlet fever in the Fourth Army. From their own experience they were able to confirm the statement of the Swedish professor, C. Kling, as to the relative rarity and benignity of infectious diseases at the French front. They had treated 131 cases in nine months; all ended in recovery. Treatment consisted of the usual hygiene and diet, with sodium salicylate in doses of 3 to 6 grams daily, given for the reduction of the fever. Rheumatism occurred as a complication in 29 per cent. of the cases, and jaundice in 8 per cent. The rheumatism, which was not serious, presented the characters described by Trousseau; there was neither effusion nor oedematous redness round the joints, only pain about the insertion of the ligaments, and often in the periarticular muscles. Not many joints were affected; the knee and shoulder were most frequently attacked. The onset was sudden, the evolution rapid, and resolution was complete. The salicylate had an evident effect on the infection, and was well borne. On the other hand, antistreptococcic serum was useless. The jaundice, which in half the cases of rheumatism was a concomitant, was slight, lasting generally only ten to twelve days, and did not increase the gravity of the prognosis. MERKLEN, from his experience, agreed as to the frequency of rheumatism in men suffering from scarlet fever last summer, and its frequent association with transient disturbances in the rhythm and tone of the heart sounds. Scarlatinal albuminuria, having nothing to do with renal sclerosis, but due to slight acute simple nephritis, did not contraindicate the use of salicylate.

31. The Pulse in Scarlet Fever.

AT a meeting of the Société Médicale des Hôpitaux on October 22nd, 1915 (*Paris méd.*, November 27th, 1915), NOBÉCOURT reported nine observations of scarlet fever, showing the frequency of tachycardia in convalescence from that disease. The acceleration of the pulse might be noted thirty to forty days after the disappearance of the eruption. This fact, he said, had a certain interest for the army medical officer called on to give an opinion as to the probable duration of convalescence in scarlatinal patients.

32. Nephritis in Soldiers in the Field.

AT a meeting of the Académie des Sciences on November 8th, 1915 (*Paris méd.*, November 27th, 1915), PIERRE MARIE read, on behalf of G. PARISOT and F. AMEUILLE, a paper on certain acute forms of nephritis of abnormal type observed in soldiers in the field both French and British. These cases were of exceptional severity, and caused an enormous albuminuria coming on suddenly; sometimes also uraemic phenomena were observed which were all the more misleading as they coincided with a high degree of fever. They were certainly of toxic origin, although they could not be confounded with fatigue albuminuria. They were perhaps due to too carnivorous a diet, to insufficiency of diuretic beverages, and to immobility in the trench. Parisot and Ameuille drew two practical conclusions: (1) That an examination of all patients should be made systematically, and (2) that means should be found of supplying the combatant with abundance of vegetables.

SURGERY.

33. The Treatment of Septic Wounds.

THE *Policlinico* (Sezione pratica, Fasc. 2, January 9th) contains a report of a discussion on the treatment of septic wounds held at Milan on November 11th in the group of medical war propaganda (Conversazioni castrensi promosse dal Gruppo di propaganda medica nella guerra). PEREZ of Pavia opened the debate by saying that as to the treatment of aseptic wounds there was general agreement. Simple protective aseptic medication, preceded by cleansing of the skin of the part with benzine, alcohol, or tincture of iodine, with a good position of the injured limb, was sufficient to effect a cure. As for the treatment of infected wounds, while some insisted on the necessity of large incisions, opening up of tracks, free use of an antiseptic by irrigation, packing and drainage, others recommended more or less complete abstention with simple cleanliness of the part and immobilization in a convenient position. Perez thought abstention might easily be carried too far; in the treatment of war wounds the sound rules of general surgery should be adhered to. It was necessary to avoid or to reduce as far as possible the dangers to which the organism was exposed in defending itself against the processes with which the injured part had to contend. To-day the surgeon had at his disposal all the means of meeting these indications. Moist heat, favouring vaso-dilatation and diapedesis, hastened the natural evolution of the inflammatory process; hence very hot packs were of the greatest use, and had a sedative action on pain. Where inflammatory hypertension persisted and tended to increase, free incision was necessary in order to prevent or arrest gangrenous processes, bony necrosis, and infiltration of the cellular tissue. Moreover, such incisions, by reducing congestion of the tissues, opened up a free path for the elimination of toxic products and exudates, and obviated the risk of thrombosis consecutive to stasis in the vessels. As for circumscribed collections of pus, the best course was undoubtedly to open at the most dependent part. Perez went on to say that the abandonment of many antiseptics in the treatment of wounds was connected with the fact that many of those once considered very active not only did not possess a powerful and speedy bactericidal action, but injured the tissues, diminishing the power of defence, besides exerting a general toxic action in the organism. But if sublimate, carbolic acid, and other antiseptics were now discarded, that did not mean that antiseptics not having these drawbacks must be abandoned. Where the skin was unbroken, alcohol, either alone or in combination with iodine, was very efficacious. Among the antiseptics which might be applied to wounded tissues without disadvantage was oxygenated water, which, besides its antiseptic and oxidizing action, also promoted the clearing out of exudates and broken down tissues in the tracks and anfractuosities of wounds. There are also the preparations of iodine and chlorine. He insisted on the great efficacy of calcium hypochlorite, both on account of its antiseptic power (which it owed as much to the chlorine as to the calcium), and of the property which it possessed of destroying dead tissues without affecting living tissues. It thus exerted a very marked cleansing action on gangrenous wounds. Moreover, it was not toxic. Potassium permanganate might be very useful, especially in cases of putrid gangrenous wounds, and, owing to its very slight toxicity, had the advantage that it might be used for the prolonged immersion of limbs. In addition to local treatment it was well to use means to increase the resisting power of the organism by means of therapeutic serums and vaccines. In this way it was possible to save limbs which seemed doomed to amputation. MIRTO of Milan thought they should seek to restrain the great readiness of young surgeons to intervene for the extraction of projectiles in parts where they caused no inconvenience, and more especially for the removal of bony fragments, which if left might help the formation of osseous callus in some comminuted fractures. Disinfectants should be used only in suppurating wounds, and must be condemned when they injured cell vitality. He had got the best results from abundant irrigation of suppurating foci, which had the advantage of removing necrotic shreds and foreign bodies, and bringing the disinfectant to bear on surfaces already cleansed. For wounds he used oxygenated water and a solution of calcium hypochlorite, 3 per cent., with the addition of boric acid 4 per cent. That solution gave excellent results. The disinfecting irrigation was followed by washing with physiological solution to revive the tissues. In inflammatory infiltrations he used moist heat and packing with gauze steeped in alcohol, 60 to 70 per cent. By these methods he had treated some 250 cases of wounds without a single death or complication,

and with excellent functional result. PICCAGNONI of Busto Arsizio agreed with Perez that there was no scientific justification for the abstention now recommended in the treatment of septic wounds. It was only by seeking carefully to destroy the source of the infection by giving free exit to pus that grave consequences could be prevented. Abstentionism could be justified only if serum and vaccine therapy could be applied effectually. They were, however, still far from that consummation. A. BERTARELLI, without disputing the efficacy of sublimate as an antiseptic, could not forget the erythema and true dermatitis sometimes produced by the use even of a solution of 1 per 1,000 for washing the skin. Potassium permanganate, oxygenated water, and calcium hypochlorite, were better antiseptics and were free from disadvantages. He would like to see the use of sublimate reserved for the disinfection of things, and no longer applied to the human body. Iodoform he would also abandon on account of its irritating effects on the skin, and he would say the same thing of xeroform. PEREZ, in summing up the debate, said he recognized the efficacy of serum and vaccine therapy rationally carried out. But he believed that when the method was even in a more advanced stage than it was at present it would still be difficult, without surgical intervention, to prevent the consequences of accumulations of pus.

34. Localized Tetanus.

AT a meeting of the Académie de Médecine on November 9th (*Paris méd.*, November 27th, 1915) SAMUEL POZZI reported a case of tetanus strictly limited to the wounded limb. The patient was a man who had been struck by a fragment of shell which pierced his foot, making a lacerated wound of no great size. He was dressed almost immediately, and after three days received an injection of antitetanic serum; he seemed in a fair way to recovery, but suddenly, on the fifth day, the temperature rose. He had convulsive movements of the wounded foot and the leg and thigh of the same side. The man complained of intolerable pain, which neither morphine nor other opiates nor chloral could relieve. He called loudly for amputation, and this was done, as there appeared to be no other means of saving his life. For a certain time the pain continued to be very severe; then, after some large injections of serum, it diminished in intensity. All these phenomena involved only the foot and leg of one side, only sometimes radiating to the other side. At the time of the report the patient was making an excellent recovery, the only symptom remaining being painful contraction of the leg and the thigh. The temperature had become normal and the infection had disappeared. ROUTIER said that he had had 5 cases similar to that reported by Pozzi.

35. Extract of Fragments of Projectile from the Lung.

AT a meeting of the Société de Chirurgie on October 27th, (*Paris méd.*, November 27th, 1915) MAUCLAIRE discussed the indications for the extraction of projectiles embedded in the lungs. He said the surgeon must intervene if the respiratory movements caused great pain or if there were signs of a large abscess. If the projectile was deeply seated it was best not to intervene. The operative technique was facilitated by radioscopy and radiography, and by the use of Bergonié's electric vibrator. QUÉNU agreed with Mauclaire, and pointed out as a contraindication of intervention the presence of a number of fragments. TUFFIER thought that some precise indication, such as the menace of a complication, should be awaited before intervention. At a meeting of the same society on November 10th, PIERRE DUVAL expressed the opinion that every foreign body in the lungs should be removed. He drew a distinction between (1) projectiles superficially or deeply seated, lodged in a piece of lung adherent to the chest wall, with or without cutaneous fistula, and (2) projectiles lodged in free lung not adherent to the thorax. In the former case the indication for operation was definite. In the second it was open to discussion, but Duval thought it was indicated, on account of symptoms which made the wounded man quite unfit for service, and in view of the possibility of a suppurating focus enveloping the projectile.

36. A Fragment of Shell in the Right Ventricle.

AT a meeting of the Réunion des Médecins de la IV^e^ Armée on October 22nd (*Paris méd.*, November 27th, 1915) VOUZELLE reported a case in which he had attempted to extract a fragment of shell from the right ventricle. On opening the thorax and pericardium, the fragment was seen lying free in the cavity, and could be seized with the fingers. Every attempt to remove the foreign body, however, was followed by alarming syncope, and the operation could not be completed. The patient died four days later of suffocation. The autopsy showed no visible lesion in endocardium.

37. Gaseous Bags as Dressings.

MORISOT (*Journ. de méd. et de chir. pratiques*, July 25th, 1915) recommends as a dressing for wounds the application of sachets or bags containing materials from which gases, especially carbonic acid gas or oxygen, will be generated and reach the wounds in the nascent state. He recommends that the outer covering of the bag should be of "tangeps," a perforated material with a mesh somewhat smaller than that of gauze, and that it should contain sterilized granulated cork. The bag will thus only touch the wound at points instead of lying wholly in contact with it, and air will circulate freely within the bag. As a dry dressing, when no gaseous element is introduced, this has an advantage over gauze in that it adheres less to the surface of the wound, and therefore cicatrization is not so much interfered with and is more rapid. In order that carbonic acid gas may be continuously in contact with the wound the cork is prepared in an acid solution, dried, and placed inside the bag, together with the desired amount of sodium bicarbonate. The addition of anhydrous sodium carbonate enables a certain quantity of heat to be generated when the bag is dipped in water, and so helps the nutrition of the tissues. When the dressing is needed for use the bag is soaked in boiled water and rapidly applied to the wound, when carbonic acid gas is slowly and continuously generated. The gas as thus produced is in no way irritating, and penetrates into all the recesses of the wound. To obtain oxygen in the nascent state, the bag should contain bicalcite, which in contact with nascent carbonic acid produces oxygen. For a dry dressing the wet bag is covered with cotton-wool, for a wet one with an impermeable covering. The advantages of this form of dressing are: (1) Cheapness; (2) simplicity of application, with no need for the preparation in advance of any solution; (3) ease of transport and of conservation; (4) non-adhesion to wound surfaces; (5) maintenance of a gaseous atmosphere round and within the wound; (6) analgesic action due to the carbonic acid and to the formation by the dressing of a tampon permitting of the support of the weight of the body. A patient with wounds of the foot, for example, no longer feels sharp pain, and can earlier begin active movements and walking.

38. Gas in the Tissues.

WOODBURN MORISON (*Archives of Radiology and Electrotherapy*, December, 1915) states that he has been able on many occasions, by *x*-ray examination, to demonstrate the presence of gas in the tissues in association with injuries caused by pieces of shell casing or metal with ragged edges. In all these cases the metal had carried into the tissues shreds of clothing, which were found in the track, and adherent to the ragged edges of the projectiles. The clothing of the men coming from the trenches was caked with earth in many places, and in this way anaërobic gas-forming bacilli were carried deep into the tissues. Gas was more rarely proved in wounds occurring in the face or hands and in wounds made by rifle bullets, which, with their pointed ends and smooth surfaces, carried no clothing and afforded no means of entrance to gas-forming bacilli. The author divides into two groups the cases in which gas was demonstrated: (1) True gas gangrene. Here the gas formation was exceedingly rapid, spreading along the muscle sheaths, and finally leading to complete disintegration of the muscles. The quantity of gas evolved was considerable, the part affected being swollen and so tense that the gas could be heard escaping when an incision was made. (2) Localized gas formation. Here the gas formed in the vicinity of the metal and collected in bubbles of varying size, gathering slowly and not exhibiting the same tendency to spread along the muscle sheaths. It was possible to demonstrate its presence in minute quantity long before it could be diagnosed otherwise than by *x*-ray examination. If gas is present, surgical interference is at once indicated; if absent, one point at least has been established in favour of leaving well alone.

39. X-Ray Images in Stereoscopic Relief on the Screen.

TO see the image on the fluorescent screen stereoscopically has long been the desire of radiologists, but the necessities of the war, when large numbers of wounded have to be examined and the position of a projectile or the site of a fracture localized as quickly as possible, have given the matter a fresh importance. GIBON (*Compt. rend. Acad.*

des Sciences, No. 161, 1915) gives particulars of three methods. In the first of these, two *x*-ray tubes are employed (or one tube with two anticathodes), and the diaphragm is placed between the tubes and the subject. This diaphragm consists of the leaves of a metal impermeable to *x* rays save for an opening of variable width. Starting from the first tube, the rays pass through the opening of the diaphragm and the body of the patient, forming an image on the platinocyanide screen. The rays from the second tube form another image, and these two projections, slightly dissimilar, make a stereoscopic pair, which can be viewed with a Wheatstone stereoscope. The relief is proportional to the distance apart of the tubes, and the distance from the diaphragm to the screen. The maximum width of the diaphragm window must always be less than the separation of the two anticathodes. A second method involves the use of a special screen consisting of a plaited or corrugated metallic sheet, again with two tubes in action. The rays from the tube to the left, after passing through the part to be examined, rendered fluorescent only the plaits or corrugations to the right, for they traverse perpendicularly only the minimum thickness of metal, whereas the rays from the same tube, before reaching the plaits to the left, have to meet obliquely a greater thickness of metal, and in consequence do not irradiate the platinocyanide. The same thing happens in the reverse sense in the case of the rays from the other tube, and thus a stereoscopic pair is formed of alternate bands of the separate images, which it is sufficient to observe in a mirror stereoscope. The mirrors reflect, one of them the plaits to the right and the other the plaits to the left, so that each image appears to be continuous, and on both being examined simultaneously they give the effect of relief. A small screen, sufficient for the examination of the limbs, may be constructed by taking a sheet of aluminium, 1 mm. in thickness, 50 cm. in length, allowing about 20 cm. for the plaiting or corrugation, the plaits being about 8 mm. in breadth. If the distance from the screen to the tube be 50 cm., and the separation of the anticathodes be 20 cm., the angle of the plaits of the screen should be about 30 degrees. A third method consists again of employing two tubes, but with double obturators, or shutters, so that each eye perceives only the projection of the tube to which it corresponds. By alternately masking each tube at a rapidity of about five times per second, and allowing each eye to see only its separate image, one may obtain the impression of an image in continuous relief, thanks to the persistence of the retinal image, and also to some persistence of the fluorescence of the platinocyanide screen. A useful obturator may be obtained by a number of methods, but the most efficient would be one by which the action of the obturators is controlled by the actual passing of the current alternately through each of the tubes.

40. Extension Apparatus for Fracture of the Humerus.

J. ABADIE (*Bull. et mém. de la Soc. de Chir. de Paris*, July 6th, 1915) describes an extension apparatus for fractures of the humerus which gives results similar to those obtained by means of Delbet's apparatus, and has as an additional advantage that it can be quickly made out of materials which are possessed by every ambulance. The apparatus is made up of several parts. A wire-work or perforated splint or a piece of zinc of about 20 cm. by 6 cm. (7.8 in. by 2.3 in.) is bent into three parts at right angles to one another, one of the turned-up ends being twice as long as the other. Next a piece of hoop iron 50 cm. in length (19.5 in.) is taken, and at the end intended for the lower end of the splint a length of 6 cm. (2.3 in.) is bent at right angles to the stem, while at the other and upper end the iron is bent on itself twice so as to form a hook. The lower end of the iron is now inserted into the three-sided splint, so that the longer end of the small splint lies outside and parallel to the iron stem, and the shorter end of the small splint is doubled over the foot of the iron one. The two are fastened together by means of plaster-of-Paris bandage. Next are made two arches of iron wire; the lower one, which is well padded, is in the shape of a double crescent, and is intended to pass below the axilla; the upper arch, which can be hooked into the lower one, to pass above the shoulder. The points of application of the extending forces are the upper part of the forearm with the elbow bent at right angles and the axilla respectively. In applying the apparatus, the upper end of the forearm and lower end of the arm are well padded and the lower angle of the splint fitted well into the bend of the elbow, the splint being maintained in position by turns of bandage; the iron-wire arches are applied under the axilla and above the shoulder and hooked together. Continuous elastic force for extension is then obtained by several turns of india-rubber tubing, which pass over the hook on the upper end of the iron stem and below the upper iron-wire arch; the amount of traction is easily regulated by the thickness of the india-rubber employed, the number of turns taken, and the amount of tension given initially to the india-rubber. Certain precautions need to be observed in applying the apparatus. The front of the shoulder should be well padded, or, better still, the iron stem bent so as to avoid undue pressure in this region. The direction of the hook at the upper end of the iron stem may need to be slightly incurved, in order that the direction of traction may be parallel to the long axis of the humerus. The time needed for the construction and application of the apparatus is from fifteen to twenty minutes, but if the necessary apparatus is made beforehand, as can easily be done, not more than five minutes is needed to put it in position. Compound fractures can easily be dressed without disturbing the splint, space is left between the iron stem and the arm and the part of the arm which is accessible comprises from 5 cm. (1.9 in.) above the bend of the elbow to the axilla and the acromion process. The results obtained are the same as those obtained from the use of Delbet's apparatus. Preliminary reduction of the fracture is unnecessary since coaptation takes place progressively. Pain ceases almost immediately. A special advantage of the method is the freedom of movement allowed to the arm without cessation of traction.

41. Wounds of Abdomen.

AT a meeting of the Société de Chirurgie on December 1st, 1915, MARQUIS, of Rennes, presented statistics of 68 cases of abdominal wounds from the battle of the Marne which were almost of necessity treated by expectancy on account of conditions which made suitable intervention impossible (*Paris méd.*, January 1st, 1916). Of the whole number, 36 died and 32 recovered. A certain number of the wounds were not penetrating, and in 21 in which there was was penetration the projectile was a bullet. He concluded that when a large number of wounded had to be dealt with, abstention from operation and placing the man in Fowler's position with injection of serum, and in in certain cases rectal irrigation, gave satisfactory results. Speaking of 84 cases of penetrating wounds of the abdomen communicated by STERN, ROCHARD reviewed all the cases of intervention and abstention in such injuries which had been presented to the society since the beginning of the war. From his clinical records he concluded that laparotomy was the only treatment applicable to war wounds, as it was to those of civil life.

42. Wounds of the Spleen.

AT a meeting of the Société de Chirurgie on October 27th, 1915 (*Paris méd.*, November 27th, 1915), WILLEMS of Ghent read a communication on wounds of the spleen. He had performed five splenectomies for rupture of the organ only a few hours after the infliction of the wound. All the patients died, doubtless, he thought, on account of the circulatory disturbances caused by the suppression of a healthy gland in full work and not compensated for. QUÉNU said he had also observed the gravity of wounds of the spleen caused by projectiles. ROUTIER thought the gravity of splenectomy was not due solely to the removal of an important organ. There must be an unknown factor, for he had operated in at least three cases for wound or rupture of the spleen, and all his patients got well. HARTMANN also mentioned several cases of successful removal of a healthy spleen. WILLEMS pointed out that the cases he had seen were instances of true bursting of the organ, not simple perforations.

43. War Deafness.

AT a sitting of the Académie de Médecine on December 21st, 1915 (*Paris méd.*, January 1st, 1916), LANNOIS and CHAVANNE read a paper based on the observation of a thousand cases of war deafness treated at the oto-rhino-laryngological centre of the Fourteenth Region. The prognosis depended on two factors: (1) The previous condition of the auditory apparatus. Men suffering from chronic suppurative otitis media, or well-marked sclerosis, after commotion of the labyrinth by the bursting of shells, showed an incomparably greater proportion of deafness or impaired hearing than healthy subjects. Of 189 men sent back from the front for chronic suppurative otitis media, intensified by concussion caused by shell, only 43 per cent. were returned to the fighting line; 56 per cent. were passed into the auxiliary services; 1 per cent. was discharged as unfit. Of 134 cases of sclerosis sent back on account of defective hearing after some

months of campaigning, 48 per cent. were passed into the auxiliary services, while 52 per cent. were returned to the fighting line. (2) The existence or otherwise of a direct injury to the skull, deafness being almost the rule in traumatic mastoiditis (about 95 per cent.); frequent in traumatism of the branches of facial nerves distributed to the ear (about 30 to 40 per cent.); rare in fractures of the cranial vault. In such cases it was generally unilateral deafness that was produced. If there was no direct traumatism, concussion of the labyrinth was rarely followed by deafness. In 645 cases with and without rupture of the drumhead, the authors saw only 2 per cent. of cases of definitive bilateral deafness. This proportion was 5 per cent. among 262 cases of pure concussion without rupture, the rupture being, in fact, a factor making for mitigation of the effects of the injury owing to the immediate decompression which it caused. Acoustic exercises had no effect on definitive deafness due to concussion of the labyrinth. Recourse must be had to lessons in lip reading if the victims of such injury were to be kept in touch with social life. Great care must be taken before giving a prognosis, to exclude malingering. The authors had found simulation in 11 per cent. of their 262 cases of pure labyrinthine concussion. Simple deafness and deafness with dumbness from traumatic neurosis got well the more quickly the patient received suitable treatment.

At a meeting of the Académie des Sciences on November 15th (*Paris méd.*, November 27th, 1915) DELAGE read, on behalf of MARAGE, a paper describing the treatment employed by him in the case of soldiers who had been made deaf and dumb without apparent lesion by the bursting of high explosives. If hearing and speech are not recovered within a few weeks, they may be permanently lost. Marage applies mechanical vibratory massage to the larynx and the sides of the neck, thus calling into play both the intrinsic and the extrinsic muscles of the larynx. The patients treated in this way began to speak after a few days, and in three weeks completely recovered their speech. They had been deaf and dumb for four or five months, and all other methods of treatment had failed.

44. Chronic Traumatic Oedema of the Back of the Hand.

DISCUSSING the hard traumatic oedema of the back of the hand, first described in 1902 by Vulliet, L. LEVY (*Deut. med. Woch.*, August 12th, 1915) records 3 cases among about 1,000 patients treated in the orthopaedic department of a military hospital. The first patient crushed his hand between two pieces of wood in a railway accident; the second patient was struck on the back of the hand with the butt of a rifle. The third patient was a man, aged 31, healthy and powerfully built. A blow on the back of the right hand, given by the blunt end of a hatchet, provoked severe pain, which was soon followed by great swelling of the hand. Though no effusion of blood could be detected, the skin became livid, and it was very difficult for the patient to close his fist. Wet compresses were applied. He remained on active service after the accident, although he could not hold his rifle properly. Six weeks later he was given sick leave, and the swelling was then still firmer, and the fingers were more rigid than before. The condition was but little affected by massage and warm hand baths, and four and a half months after the accident the swelling was as hard as a pumped-up rubber tyre. Whilst the swelling tapered away over the backs of the first four fingers, it ceased abruptly at the back of the wrist and at the bases of the fifth finger and the thumb. The palmar aspect of the hand was not swollen. The skin over the swelling was livid and tense; it could not be pinched into folds and showed no pitting on pressure. On passive movement the fingers, which were extended, could be made to turn about an angle of 15 degrees; but the patient could not move them voluntarily. The *x* rays revealed marked atrophy of the bones, but showed no sign of fracture. Orthopaedic exercises have been found of little value in the treatment of these cases, and the author therefore confined the treatment to daily hot air baths at a temperature of 70° C. Later, eighteen injections of fibrolysin were given, and the patient was discharged more than half a year after the accident without any improvement having been effected. The pathology of this condition, which the author thinks is probably a trophoneurosis, is not fully understood, and no effective microscopic study of the tissues concerned has yet been made. But the author is certain that the atrophy of the bones, as shown by the *x* rays, is merely a secondary phenomenon, due to the interference of the oedema with the nutrition of the bones. This atrophy is not characteristic of chronic idiopathic oedema; and it is also observed in cases of fracture of the metacarpal bones associated with oedema.

45. Localization of Foreign Bodies by Electro-vibration.

PHOCAS (*Arch. d'électr. méd.*, November, 1915) has described to the Société de Chirurgie a case in which a number of small fragmented foreign bodies were extracted under the guidance of the Bergonié electro-vibreur (an electro-magnet charged with alternating current, which sets up induced currents, and consequent vibration, in metal fragments within its field of influence). The case in question was that of a soldier who had received a splinter of shell on the external face of the thigh. The splinter encountered a knife which was in the man's pocket, and this it broke into several pieces, which were sent into the flesh, and it was itself broken into particles. Five of the fragments were extracted under local anaesthesia (cocaine), the electro-vibreur successfully making the localization, and confirming the *x*-ray localization which had previously been made. The largest of the splinters was of the size of a small nut. A month later a further operation took place, also under local anaesthesia, and six small splinters were extracted, some of which appeared to have formed the handle of the knife, and others the blade. Yet another operation, under chloroform, took place a fortnight later, and the remaining piece of metal was extracted. Cicatrization was obtained within two months of the first examination, which itself took place more than two months after the date of the wound. The author considers the method a valuable one in shell wounds where there has been much fragmentation.

THERAPEUTICS.

46. Treatment of Dysentery.

AT a meeting of the Réunion des Médecins de la IVe Armée on December 3rd, 1915 (*Paris méd.*, January 1st, 1916), P. EMILE WEIL said he had, by the use of emetine hydrochloride in doses of 8 to 20 centigrams in the day administered by hypodermic injection, got far better results in dysentery and dysenteriform diarrhoea than those obtained with collargol, bismuth, or sodium salicylate. After the first injection the stools diminished in number by at least one-half. He found that the drug acted as well in ordinary dysentery as in the amoebic form. LEON GIROUX said that he had treated 172 cases of diarrhoea, two-thirds of which showed the characters of dysentery. He insisted on the value of the urinary crisis with free discharge of chlorides associated with bradycardia as signs of convalescence. He had only four deaths. The complications noticed were a febrile choluric jaundice; paratyphoid infection in three cases, in one of which the *B. dysenteriae* was found in the stools; joint and muscle pains in some cases accompanied by scarlatiniform erythema, herpes in two cases, paroxysmal tachycardia in two cases; four cases of transient albuminuria, one case of diaphragmatic pleurisy, and one of Raynaud's syndrome. He used antidysenteric serum in cases where the corresponding infection might be suspected. When this first treatment remained without effect, and in general in all cases of bloody diarrhoea, he used emetine in doses of 0.04 gram daily with excellent results. In choleriform diarrhoea he recommended, besides cardio-tonic medication, morphinized serum for the muscular cramps. FÉLIX RAMOND, in dealing with glairy bloody frothy stools with very putrid smell but without *B. dysenteriae* or amoebae, recommended a carbohydrate diet and bactericidal medication of the colon by means of enemas of lactosed water, 50 per 1,000, to which laudanum might be added. These should be retained as long as possible, as they acted by the lactic acid which they produced in the intestine. From six to eight hours after the lactose enema a litre to a litre and a half of oxygen could be injected. After two or three days of carbohydrate diet it was advisable to give raw or underdone meat and milk. Whilst the diarrhoea lasted acids and bile given by the mouth were of some value. Opiates were indicated in painful forms.

At a meeting of the Société Médicale des Hôpitaux on October 22nd, 1915 (*Paris méd.*, November 27th, 1915) MILIAN reported that for two or three years he had used arseno-benzol with success in the treatment of amoebic dysentery.

AN EPITOME OF CURRENT MEDICAL LITERATURE.

War Number.

MEDICINE.

47. Cerebro-spinal Meningitis.

JEAN PIGNOT, médecin aide-major de réserve, and JEAN TERRASSE, médecin auxiliaire (*Paris méd.*, November 27th, 1915) were entrusted with the establishment of a station for the treatment of cerebro-spinal meningitis some kilometres from the French front. During a period of four months twenty-six patients were admitted to the huts; of these twenty-two were completely cured. The authors attribute this successful result to the fact that the majority of the cases were discovered at the very beginning of the disease, and that a special service working night and day prevented any delay in administering the first injection of serum. The patients, almost all of whom were found either in the trenches or the cantonments, were for the most part sent to them within the first twenty-four hours by special automobile, and the first lumbar puncture was performed immediately on their arrival. Speaking generally, even when the symptoms of meningeal reaction were but slightly marked, the presence of a cerebro-spinal liquid even slightly opalescent was judged to be a sufficient indication for an immediate massive injection of serum. The clinical diagnosis was always verified within a few minutes of puncture by microscopic examination. After the injection the patient was immediately placed with his head lower than his feet; after lying in this position for three-quarters of an hour he was put to bed in the normal position. The morphology and abundance of the meningococci were taken as guides in fixing the second dose injected the next day. The injections were given in decreasing doses till the liquid returned was almost normal and the pathogenic agent had almost completely disappeared. The quantity of serum injected varied from 200 to 300 c.cm. As there was little facility for bathing, tepid affusions were used instead. To all the patients was administered urotropine in solution, in a dose of 1 gram a day during the febrile period; those among them in whom the flow of urine was insufficient received on several consecutive days a hypodermic injection of 250 grams of artificial serum, to which 10 to 15 cg. of spartein sulphate were added. Vegetable soup and milk, condensed or otherwise, was the only food allowed in the acute stage. On the fifteenth day they were allowed to get up. After a few weeks, during which the rhino-pharynx was disinfected with gomenol [said to be a distilled essence of *Melaleuca viridiflora*, a plant indigenous to New Caledonia] and menthol oil, they were sent back to the interior to complete their convalescence. The authors point out that although the clinical forms of cerebro-spinal meningitis are extremely varied, those in the adult which came under their hands almost all presented the same evolution. The symptoms of onset were for the most part violent headache, nausea, pains in the limbs, and high fever. The onset was so sudden that most patients were able to tell the exact hour at which they began to feel ill. The most trustworthy symptom was stiffness or simply painful discomfort in the nape of the neck; this was so constant that it was often taken as an indication for lumbar puncture. Of all the pains complained of, headache, chiefly in the frontal and occipital regions, was the most violent. Vomiting was rarer, although nausea occasionally persisted for some time. Constipation, though not obstinate, was more frequent than diarrhoea. In no case was the photophobia so often met with in other forms of meningitis, especially the tuberculous, observed; the authors were struck by the clear brilliant look of the eyes. There was generally no loss of consciousness, and even those who had become comatose recovered their intellectual faculties with fair rapidity after the serum treatment. Hyperaesthesia and hyperalgesia of the skin were unfailing symptoms. Sometimes true tonic convulsive crises, with opisthotonos like to that seen in patients with tetanus, were observed. This made the injections very difficult. The pulse, which was taken very regularly, showed great instability, but was generally well marked and not slow. Albumin was never found in the urine. Several patients presented a well-marked herpetic eruption on the face, lips, chin, and the lobes of the ear, never on the rest of the body or the mucous membrane. Sero-toxic rashes, however, were seen in some patients from the eighth to the twelfth day after the first injection. The authors never observed any sign of anaphylaxis when injections were begun again in cases of relapse. They conclude by emphasizing the importance of recognizing a meningeal reaction at the earliest possible moment. When a cerebro-spinal fluid of suspicious aspect is found an injection of antimeningococcus serum should be given forthwith.

48. Typhoid and Paratyphoid Mortality.

AT a meeting of the Réunion Médico-Chirurgicale de la IV Armée held on January 14th, 1916 (*Paris méd.*, February 19th, 1916), BOIDIN read a communication in which he stated that, according to his own observations, the mortality of typhoid conditions had diminished to a considerable extent since the autumn of 1914, when it was 18 per cent., till the summer and autumn of 1915, when it was only 1.6 per cent. This diminution, he said, was due to the progressive and almost absolute disappearance of Eberthian enteric, which now accounts for only 5 to 6 per cent. of all typhoid conditions. The result is due to anti-typhoid vaccination, the fever only exceptionally attacking those protected by that method. On the other hand, paratyphoid attacks those vaccinated against typhoid in the proportion of 87 per cent. The paratyphoid mortality is very low in the hospital in which he works. Whilst the typhoid mortality varies from 14 to 17 per cent., that of paratyphoid B is 6 per cent., and that of paratyphoid A only 1.4 per cent.

49. Submarine Casualties.

AT the annual meeting of the American Association of Military Surgeons, held at Washington in September, 1915 (*Military Surgeon*, January, 1916), W. H. HALSEY, Past Assistant Surgeon U.S. Navy, read a paper on submarine casualties. He says diphtheria, the exanthemata, cerebro-spinal meningitis, tuberculosis, and all communicable diseases, including gonorrhoea and syphilis, are a menace to the efficiency of the submarine, and injuries, however slight, may hold most serious potentialities. An illness or injury occurring on a battleship, which would hardly keep a man from performing ordinary duty, if occurring on a submarine would necessitate the immediate removal of the man to the sick bay of the tender or to a hospital. As the number of men is limited this could not happen many times without serious consequences. The problem before the medical officer, therefore, is mainly that of prevention. Halsey classifies the incidence of conditions which may endanger the health or life of the crew as follows: (*a*) *When the submarine is on the surface, either stationary or under way:* (1) Gasoline poisoning (in the gasoline type of boat) due to unburned gas coming from breaks in the supply line. (2) Gasoline poisoning due to back fires in the exhaust, which fill the boat with partially burned gas. (3) Gasoline explosions. (4) Trauma due to falls from deck through hatches. (5) Drowning; men may fall or be swept overboard. (*b*) *Submarine on surface and under way:* (1) Sea-sickness. (2) Drowning; men may be washed overboard either from deck or from temporary bridge, from which place the submarine is frequently navigated while cruising. (3) Ramming or being rammed by another submarine or destroyer, or striking an obstruction to navigation. (4) Trauma due to violent shifting of the boat or to being struck by heavy objects adrift inside the boat. (*c*) *Submarine awash or submerged:* (1) Leaks in watertight body of boat. (2) Leaks into battery tanks and generation of HCl gas. (3) Battery explosions (explosive combination of free battery hydrogen and the oxygen of the air). (4) Ramming or being rammed. (5) Vitiation of air. (6) Noxious gases from ballast tanks after long disuse, notably marsh gas. (7) Inability to regain positive buoyancy owing to submergence at too great a depth. (8) Inability to right the boat and bring her

to an even keel at the proper depth; boat has down rudder and engines are giving the downward impetus. (9) Leakage of compressed air, so that not enough is left to blow the tanks or to revitalize the air in the boat. (10) Explosion of torpedo in tube. (11) Torpedo stuck in tube and its engines running. Friction generated intense heat. (12) Terrific cold in northern waters in winter. (13) Explosives dropped from aeroplanes. Among the phobias and psychasthenias exhibited in members of submarine crews, Halsey says the fear of submersing is rare, but the dread of submerging to too great a depth is often present. This latter fear may affect one individual or the whole crew, so that every man in range is covertly watching the depth gauge as soon as it begins to register. The fear of striking the keel of a passing ship in rising has been noted several times. Psychasthenia and neurasthenia must be constantly watched for, for an excitable individual in a submerged boat may destroy the *moral* of the crew in a moment. Dealing with the casualties more in detail, Halsey says the ever-impending danger to the crew both in peace and war is death by suffocation. The asphyxiating gas may be CO_2, HCl, Cl, gasoline or the fumes from the oil which has burnt in the oil-burning type of boat. If the mechanism which allows the replacement of water by air in the submarine ballast tanks fails to work when a boat is submerged beyond a certain depth, the men in the submarine must make the most of the few hours of life left to them. Death from carbon dioxide poisoning is inevitable. Another possibility of asphyxiation by vitiated air lies in too long submergence when eluding an enemy or manœuvring in position to attack. Then there is a certain depth beyond which a boat cannot go and again regain the surface. This point is determined by two factors: the amount of pressure which the sides of the boat will stand without collapsing, and the air pressure available to overcome the water pressure in the ballast tank. When the depth is too great there is an increased pressure, the plate seams begin to give, the submarine continues to go down, and suddenly collapses like an eggshell. The generation of chlorine or hydrochloric acid gas and its diffusion throughout the boat may occur through salt water leaking into the battery tank. The acid electro light reacts with NaCl to produce free hydrochloric acid gas and free chlorine. The effect of breathing these gases in such small dilution as the air in a submarine can afford is readily imagined. The vapours of gasoline, burnt or unburnt, are much less deadly—first, because the gasoline engines are used only on the surface, and secondly, because these gases are much less irritating to the lungs and mucous membrane. The insidious onset of gasoline intoxication, however, and its violent nerve manifestations make it a formidable possibility. The nervous phenomena run the gamut from wild delirium to profound coma. The crew become more or less used to the continuous odour of gasoline, and thus are not conscious of the impregnation of the atmosphere with the fumes until one of them drops to the deck unconscious or raves about in delirium. All the men in a compartment may be affected in quick succession, and speedy ventilation of the boat becomes imperative. The crew of a submarine is subject to the benumbing effects of cold in winter and to the oppressive effects of heat in summer. The heat is especially felt in tropical waters. The men are almost always in a state of high nervous tension, and it can never be said that they are comfortable as comfort is ordinarily known. Dangers from within and without threaten them continually, yet, says Halsey, a more cheery, uncomplaining, courageous set of officers and men would be hard to find.

50. War Psychoses.

A. B. GERVER (*Russkiy Vrach*, xiv, No. 36, abstracted in the *Military Surgeon*, the organ of the military surgeons of the United States, January, 1916) divides war psychoses into three classes: (1) Those arising in men without hereditary taint and due solely to the war environment and to violent emotions caused by battles; (2) psychoses which would develop in ordinary peace circumstances, but the onset of which is precipitated by the war; (3) dementia praecox, manic-depressive insanity, paranoia, paralytic dementia; to this class belong traumatic psychoses caused by wounds and contusions. The psychoses of the first category do not differ in any way from the old type, but may be subdivided into those caused by battles, by trench life, and rearguard psychosis. Clinically they belong to the acute mental disorders, amentia and asthenic psychoses. They often develop in the form of neurasthenic insanities. The specific character of all three classes consists in the peculiar colouring and nature of the hallucinations, illusions, delusions, and conduct. The hallucinations and delusions take their special character from the experiences of war life; another feature is depression, often followed by excitement and confusion of consciousness. The nature of the fighting (artillery, infantry, bayonet attacks, etc.), the duration of the war, life at the front, the course of military events (offensive or defensive), victory or defeat, and the general *moral* of the army determine the larger or smaller proportion of the psychoses. Gerver holds that in the present war the proportion of psychoses is relatively small, being only about 1 per 1,000, whereas in previous wars it was 2 or 3 per 1,000. The main cause of the decreased rate is the absence of alcoholism, which in the Russo-Japanese war was responsible for one-third of all the psychoses. In the present campaign not a single case of alcoholic insanity has been observed in the Russian army.

SURGERY.

51. Wounds by Small Projectiles.

H. ROULLAND (*Paris méd.*, January 29th, 1916) states that three things characterize wounds by small projectiles—the insignificant appearance of the lesions; the depth of penetration of the projectile, and the rapidity and gravity of the infectious phenomena. This special septicity seems to be due to the smallness of the aperture of entry and the passage through the tissues—the muscular fibres come together behind the projectile, forming a closed chamber, a circumstance eminently favourable to the growth of germs carried in by fragments of cloth, hairs, etc. The man comes to the ambulance as a *petit blessé* with a very small wound, sometimes already covered by a dark-red crust; the aperture of entry varies in size from a pea to a franc piece, and one would often be tempted to believe that this represents the whole extent of the injury. But in the great majority of cases the projectile has penetrated. If the crust is removed a reddish muddy liquid, sometimes mixed with gas, flows out; a hollow probe introduced into the small hole goes to the projectile if that has remained embedded under the skin, or lies buried in a part where the muscles are not very thick (hand, foot, head). It stops at the aponeurosis if it is among thick muscles or in a tendinous region (thigh, leg, arm, buttock, back), and the surgeon may think that the projectile has not penetrated deeper. If the probe goes through the aponeurosis, an artificial intramuscular passage sometimes far removed from that of the projectile will easily be made. That often strikes obliquely from below upwards, and makes tortuous passages sometimes of ten or twelve centimetres in depth. All shell wounds are greatly contused owing to the irregularity of the projectiles, to the force of propulsion, perhaps also to high temperature causing a true burn. Even when the wound involves only the skin and cellular tissue, it produces a special mortification of the tissues which take on a greyish aspect with red border in which repair takes place with difficulty. These wounds are always infected. When the projectile has penetrated into a muscular mass it causes either a localized infection in the form of a small abscess which is easily emptied, or a more extensive infection with microbic agents of special virulence which cause a true gas phlegmon. These infections develop with astonishing rapidity, stripping the muscles along the aponeurosis; Roulland has seen this occur within six, eight, or ten hours of the infliction of the injury. Infection may spread over a whole region or limb and end in septicaemia of great gravity. When a projectile of at least 1 cm. square strikes a short bone (carpus, finger, tarsus) it pulverizes it or splits it lengthwise; in a long bone it embeds itself on the external surface. Every bone lesion gives rise to great pain which is sometimes worst when the wound is smallest. It is extremely intense at the point of fracture or embedding, and is often accompanied by local oedema or ecchymosis. Lesions of the bones of the skull have special characters, according as the projectile remains embedded under the skin, buries itself in the bone or passes entirely through it. If it only strikes the bone it sometimes produces a small star-shaped crack of the outer table. This slight injury is to be distinguished from tangential wounds which almost always cause injury of the brain and haemorrhage. When the projectile buries itself in the outer table it causes fracture of the inner table, which is driven in over a considerably larger surface than the orifice made by the projectile. In every case in which Roulland has seen the

small metal fragments embedded in the thickness of the bone he has found damage of the inner table. When the projectile traverses the bones of the skull it produces meningeal or cerebral lesions, which are always serious and quickly become infected (abscess of the dura or the brain). Even very small projectiles may cause such lesions; therefore all wounds of the head should be examined with the greatest care. As an example, Roulland cites the case of a soldier sent to the ambulance with the diagnosis of superficial abscess of the scalp. It was found that he had been wounded twenty-five days before by a very small fragment of shell which penetrated at the level of the upper part of the squamous portion of the left temporal. The medical officer of his battalion, believing the wound to be of no importance, kept him seven days under observation, and, the skin wound being then healed, sent him back to the trench. The man continued to suffer from slight general discomfort, till suddenly, eleven days after the infliction of the wound, total aphasia came on, with nausea, vomiting, and violent headache. He was kept at rest, and the aphasia disappeared in two days, but the general phenomena persisted. A few days later there was violent pain in the cicatrized wound, and a subcutaneous abscess formed. He was then sent to the ambulance, where Roulland freely incised the abscess and discovered a small hole, which allowed the introduction of the end of a hollow probe, and led to a subdural abscess. Trephining showed that there was a shirt-stud abscess, caused by a penetrating projectile which had not been recognized. The operation was followed by the relief of all the symptoms, and the man at the time of report was convalescent. In joints, especially the knee and shoulder, and in the abdomen, the smallest projectile causes serious injuries. When one lodges within the sheath of a blood vessel, lesions of the coats are produced, which cause secondary haemorrhage and the formation of aneurysms. Roulland has found in several cases the projectile lying in the very centre of the aneurysmal sac; speedy extraction generally prevents serious consequences. In the case of an infected wound a free incision should be made, the foreign body should be sought for generally in the centre of the focus of infection, free drainage should be provided, and the wound should be irrigated with oxygenated water. In bone lesions the seat of fracture should be exposed, especially in wounds of the hands or feet, which are often complicated by tendinous lesions. Adherent splinters if they are of any size should be left, but the foreign body should always be removed. After careful cleansing free drainage should be provided. Wounds of the skull should be operated on at the earliest moment, and it is essential as far as possible to avoid sacrifice of bony substance. If the dura is injured careful cleansing and drainage are required; if it is intact it should be incised only if there is no longer any visible pulsation. Roulland thinks that the crucial incision should be avoided, as it gives rise to great loss of substance and is repaired with difficulty. Simple puncture with the bistoury has always given him the best results. He drains with a strip of gauze steeped in alcohol. In wounds of joints early operation is required; the foreign body should be found, the sac cleansed, bony splinters removed, and free drainage provided. Every articular intervention should be done under the most rigorous antisepsis. Roulland says that in war surgery hot water applied to the injured part in the form of local baths, wet dressings, or sprays, has given him excellent results; it has a very salutary trophic action on the mortified tissues. He uses it together with lavages and dressings of oxygenated water. The moist dressing should be discontinued as soon as the inflammatory phenomena have disappeared. The neighbouring skin should be carefully washed with alcohol at every dressing. Antisepsis must be used in dealing with these infected wounds, but it must always be remembered that contused tissues have a lowered vitality and nothing must be done to injure the living cell. On this account Roulland very seldom uses tincture of iodine, which he has known in many cases to cause burns, sometimes of considerable extent, without advantage to the patient. For some time he has used the Carrel-Dakin method of disinfection. He finds sodium hypochlorite 0.5 per cent. decidedly better than the old wet dressing, but its use must not be too prolonged, as it seems to encourage oozing of the blood-stained surfaces and to prevent epidermization. In extensive wounds, which are only slightly infected, or which are cicatrizing, the application of compresses soaked in warm physiological serum gives excellent results. He prefers the Locke-Ringer formula: Sodium chloride 9 grams, potassium chloride 0.42 gram, calcium chloride 0.24 gram, sodium bicarbonate 0.15 gram, distilled water 1,000 grams; sterilize. Used as a dressing this solution increases the phagocytic properties of the white corpuscles, and clinically one sees rapid disappearance of suppuration and more rapid granulation and cicatrization than under any other dressing. Locke's serum has also shown itself superior to the ordinary physiological solution in subcutaneous or intravenous injections. Roulland has also used helio-therapy with advantage. He exposes wounds that are only slowly cicatrizing directly to the sun's rays for a period varying from one minute to twenty. The susceptibility of the integuments must always be taken into account and the time of exposure must be graduated according to the intensity of the sun's rays. Hot air judiciously used proved successful in anfractuous wounds which did not heal. Roulland thinks a projectile which has penetrated deeply without causing infection should always be extracted if it can be reached, unless it is absolutely insignificant in size. If it gives no trouble now it is likely at some future time to cause a fistula which will not close, or will encapsule itself in a shell of thickened tissue which may imprison nerve endings, causing neuralgia and painful points in muscles. It will also interfere with the function of certain muscles such as the masseter (trismus), the temporal, the gluteals, and biceps. The foreign body should never be sought for without the help of the *x* ray. He concludes by insisting on the importance of quickly curing men wounded by small projectiles as they can be sent back to the firing line. On speedy extraction depends speediness of definitive cure.

52. Gunshot Wounds of the Abdomen.

SURGEON-GENERAL PROFESSOR DR. KRASKE (*Muench. med. Woch.*, September 28th, 1915; abstract in the *American Journal of Surgery*, February, 1916), reports the results of 39 cases of bullet wounds of the abdomen met with in the course of six weeks. In general he urges the earliest possible intervention in every case; he has never seen a spontaneous cure. Of the cases in which he operated, 9 came under treatment within twelve hours of the injury; 2 died and 7 were discharged cured. Of 21 cases seen within twenty-four hours, 10 died and 11 were discharged cured. In a third series of 8 cases seen within thirty-six hours, 6 died and 2 were saved. The fourth series consisted of one case, which died. The injuries were for the most part multiple, and were situated as follows: In the small intestine eighteen times, in the stomach five times, in the caecum and ascending colon eleven times, in the transverse colon once, and in the descending and pelvic colon four times. In several cases the projectile passed through the liver into the lung, injured the bones of the pelvis, and in one instance even shattered the humerus. The openings into the gut or stomach varied from a pin point to one admitting the finger tip. In the large majority of the cases there was free air; fluid and alimentary contents were present in the peritoneal cavity. All wounds were stitched, care being taken to provide against stricture. In a number of instances portions of the gut had to be resected. In others the imperilled portion was eventrated and dealt with at a later stage. Whenever possible the abdomen was sewed tight, even in cases where the peritoneum was inflamed. Irrigation was practised in every case; Kraske lays much stress on the value of this measure. In a number of cases tube and gauze drainage to suspicious areas was provided. His results were 51.3 per cent. cures, which he holds to be not unfavourable considering all the circumstances in this class of emergency surgery.

53. Lupus in the Austrian Army.

DR. LUDWIG SPITZER, in charge of a new hospital erected near Vienna by the society "Lupusheilstätte," has lately reviewed the conditions under which civilians and soldiers suffering from lupus have been placed by the war (*Wien. med. Woch.*, November 6th, 1915). His hospital was originally intended only for civilians suffering from lupus, but 160 beds were set apart for soldiers. More than one hundred of these were suffering from dysentery, but there was also a fair sprinkling of men suffering from lupus. More than forty soldiers were thus invalided, and the actual number of patients suffering from lupus who had been passed by the military doctors was considerably greater. Many patients who had been discharged from the hospital as cured had joined the army after war was declared, and in some cases had suffered no harm from the strenuous life. The open air life and abundance of exercise have been healthier than the life of a mechanic in an insanitary workshop. But the

majority of patients suffering from lupus are weakened by other tuberculous infections—for example, enlarged glands or phthisis—and are therefore incapable of the physical strain of military duties. The risk of infection from one soldier to another was of itself sufficient to warrant the exclusion of every subject of lupus from the army. In the slight cases the disease might have been overlooked during the medical examination, but this excuse did not hold good for the more advanced cases; and Dr. Spitzer did not see a single case in which the disease was so slight that radical operative treatment was indicated. The war had, however, been the cause of many patients receiving treatment who would otherwise have been left untouched. Crowds of civilian patients had attended the hospital who, in time of peace, would never have found their way to Vienna. The military authorities had helped neglected patients in the remotest parts of the country to reach Vienna, where skilled treatment was available. Dr. Spitzer saw in this shuffling of patients by the war a prospect of an appreciable reduction in the incidence of the disease.

54. War Deafness.

At a meeting of the Académie des Sciences on November 16th, 1915 (*Paris méd.*, November 27th, 1915), Andre Castex said he had observed 27 cases of deafness following the bursting of large shells at close quarters. In some no direct injury was caused to the auditory centres or apparatus; in others, especially after violent shocks, rupture of the tympanum or labyrinth was seen. Between such patients and malingerers there is a vast category of deaf, dumb, and deaf-and-dumb. These were curable by re-education and persuasion when their functional trouble was of recent origin.

THERAPEUTICS.

55. Ethyl Chloride as an Anaesthetic in War Surgery.

Jacques Carles, physician, and A. Charrier, surgeon, to the Bordeaux hospitals, report (*Journ. de méd. de Bordeaux*, January, 1916) that they have used ethyl chloride for a year as a general anaesthetic in major surgery in the military hospital to which they are attached. They have employed it in 1,200 cases of laminectomy, amputation, resection, probing for projectiles, etc. In some cases the anaesthetic has been given for three-quarters of an hour and an hour without the slightest ill effect. Its advantages have been so conspicuous that its use has become general among their colleagues of the 4th Army. To realize the superiority of ethyl chloride as an anaesthetic in operations for serious wounds it must be remembered that in all cases the men were suffering from traumatic shock so severe as to threaten life during the two or three hours following admission. It often happened that the shock was prolonged during twenty-four or forty-eight hours, leaving the patients cold, collapsed, almost pulseless, and generally in such a condition that the slightest touch of a bistoury seemed likely to cause death. Evidently an anaesthetic having the least possible toxic effect was the only one that could be given. The quickness with which ethyl chloride is eliminated pointed to it as the most suitable agent. Sometimes the administration was followed by nausea and a little vomiting, but this was never violent and did not last long; as a rule, the patient was able to take food freely some hours—in some cases a few minutes—after the operation. Albuminuria was exceptional, and when it occurred it was slight and transient. There was no ill effect on the lungs, such as is caused by ether. Another advantage is that the administration of ethyl chloride can be entrusted to a person of little or no experience. The patient is put to sleep in a few seconds, and this saving of time may lead to a corresponding saving of life. The wounded man recovers full consciousness from a few seconds to two minutes after the discontinuance of the inhalation. This is of great importance when the hospital personnel is reduced to the lowest figure and may be inexperienced. The authors consider ethyl chloride safer than any other agent. In nearly 500 cases there was only one death, and that was in a patient with an enormous purulent effusion in the left side of the thorax, pushing the heart to the right, in whom the least movement in bed caused collapse. Usually no heart failure is to be feared. They admit that ethyl chloride does not always produce such complete relaxation of the muscles as ether and chloroform; hence for delicate and prolonged abdominal operations these are preferable.

56. Treatment of Syphilis in War.

At a meeting of the Réunion Médico-Chirurgicale de la IVe Armée, held on January 14th, 1916 (*Paris méd.*, February 19th, 1916), Goubeau read a communication on the treatment of syphilis in war. In primary syphilis he uses simultaneously arsenobenzol (giving four intravenous injections of 0.30, 0.40, 0.50, and 0.60 gram respectively) and mercury (0.30 to 0.40 gram in intramuscular injections, *plus* one injection of grey oil), then potassium iodide 3 grams a day during forty days. In secondary and tertiary cases he gives at first arsenic and mercury simultaneously, then potassium iodide during six weeks. Patients in the secondary and tertiary stages remain in his ambulance on the average twenty-two to twenty-five days; those in the primary stage thirty days. Lacapère said he found arsenobenzol alone sufficient to effect a rapid cure in a large number of cases. He thought there was no advantage, and some disadvantage, in the systematic association of mercury and iodide with it; these remedies should be used in response to special indications. Lenglet also criticized the method of triple combined treatment, which he said imposed on the emunctories a work of excessive elimination, and had no definite advantage.

57. Magnesia Hypochlorite as an Antiseptic.

Charles Mayer (*Paris méd.*, February 19th, 1916) says that he has been led to seek for a substitute for sodium hypochlorite, which has certain disadvantages, owing to its caustic properties. He has found that magnesia hypochlorite gives satisfactory results. He has used solutions made by causing 190 grams of magnesia sulphate, first dissolved in 2 litres of water, to act on 100 grams of calcium chloride, also dissolved in 2 litres of water, then filtering the precipitate of sulphate of lime thus formed. To get a clear solution care must be taken to let the liquid stand until the precipitate is entirely deposited; then decant. Magnesia hypochlorite has an antiseptic potency slightly less than Labarraque's solution (chlorinated soda). To make various cultures used for experiment inactive 7 to 9 per cent. more was required. But as it is perfectly tolerated by the tissues twice as large a dose can be used without causing irritation of the wound. Generally speaking, with magnesia hypochlorite cicatrization proceeds as rapidly as with other antiseptics under the best conditions or even by operating aseptically. The tolerance of the tissues with regard to magnesia hypochlorite is not surprising, for whereas with sodium or calcium hypochlorite it is necessary to avoid all excess of alkalinity—for instance by the addition of boric acid—with magnesia hypochlorite not only is an excess of free magnesia not to be feared, but it should even be sought for. The advantages of magnesia hypochlorite are, briefly, its great antiseptic power, its non-causticity in useful doses, and its cheapness and facility of preparation.

58. Disinfection of the Meningococcal Carrier.

At a meeting of military surgeons in Cologne (*Deut. med. Woch.*, Sept. 9th, 1915) E. Küster gave an account of his experiences of the treatment of diphtheria and meningococcus carriers. Early in 1915 a few cases of cerebro-spinal fever were observed among the troops quartered in Cologne, and an investigation made at the bacteriological institute showed that 50 to 60 per cent. of the troops among whom these cases had occurred were carriers. As there was little prospect of sterilizing these carriers by individual treatment they were treated in an inhalatorium, 100 men at a time. The disinfectant used contained a hypochlorite which gives off chlorine on contact with acids or easily oxidized organic substances. Cultures of various micro-organisms, including meningococci, exposed to the action of this disinfectant were killed within an hour. After three visits to the inhalatorium on three successive days the carriers were no longer found to harbour meningococci in the nose and throat. Only in a few cases was a further course of inhalation necessary. The same results were obtained with diphtheria carriers. Although the inhalatorium smelt strongly of chlorine, which was without doubt present in the free state, no ill effects were observed.

AN EPITOME OF CURRENT MEDICAL LITERATURE.

War Number.

MEDICINE.

59. Influence of War on Skin Affections.

BROCQ (*Bull. méd. No. 3; Journ. de méd. et de chir. prat.*, March 10th, 1916), after a passing reference to the terrible increase in the prevalence of venereal diseases since the outbreak of hostilities, discusses the modifications which the war has produced in pruriginous dermatoses, psoriasis, and certain fistulous wounds. In almost all the civilians who before the war had suffered from pruriginous affections of neuropathic and autotoxic origin the symptoms returned or increased in intensity. When they have the opportunity of changing their abode for a time and avoiding crowded places, the skin lesions become milder or disappear. In large towns or in places where there is much bustle the symptoms return. Among the troops in the field, on the other hand, many who had previously suffered from urticaria, eczema, or pruriginous lesions, when forced to give up their usual occupations and live a life of strenuous exertion in the open air, found that the disease became milder or disappeared, without change of diet or local treatment. In some cases, however, a prolonged period of service at the front caused the outbreak of pruritus, urticaria, or papulo-vesicular eczema. These observations at first sight seem to be contradictory, but Brocq holds that in the majority of cases they are not so, because the patients have been submitted to altogether different conditions. The change in the mode of life, which in some men has had a favourable influence, has been prejudicial in others who have been exposed to excessive fatigue or violent emotions. Brocq calls special attention to the increased prevalence and severity of psoriasis among soldiers at the front, especially those in the trenches. He thinks the two chief causes of the "epidemic" are the almost exclusively flesh diet and nervous shock. Similar phenomena have been observed in peace time after great emotional disturbance or severe injury. Brocq also notes the occurrence of a number of cases of dermo-epidermitis in fistulous tracks in men who have been long under surgical treatment for bone injuries; in these cases a peculiar dermatosis developed around the wound.

SURGERY.

60. Lesions of the Larynx and Trachea in War.

GHERARDO FERRERI, Director of the Oto-Rhino-Laryngo-Iatric Clinic of the University of Rome (*Il Policlinico*, Sez. Pratica, January 23rd and February 6th, 1916), says that lesions of the larynx, trachea, and neighbouring parts are incomparably more frequent in modern warfare than in that of past times, owing to the increase in instruments of destruction, and to the use of asphyxiating gases and bombs containing poisonous vapours. Moreover, numerous inflammatory lesions are spread by contagion among the enormous masses of men in modern armies. Contributory causes are the prolonged stay in trenches, damp, want of ventilation, and defective light in the dug-outs, in which the virulence of all micro-organisms is increased. In addition to these factors must be reckoned the want of opportunity for regular change of clothing; thus the skin becomes covered with germs, which may easily have a mischievous action on a weakened body. Again, there are the dangers of transport in open railway carriages, automobiles, motor cycles, and bicycles, which expose the men to rapid changes of temperature and altitude, to irritation by dust and smoke—all circumstances likely to cause respiratory troubles in those who have any nasal obstruction. Hence, after a certain period of service soldiers are liable to haemoptysis and primary tuberculous lesions of the larynx from which in normal conditions they would not have suffered. Men in the secondary stage of syphilis suffer from rapid aggravation of throat lesions. In some predisposed to haematuria *a frigore*, or peliosis rheumatica, bleeding from the nose, trachea, and bronchi of an alarming extent often occurs. In albuminurics fatigue and cold are apt to bring on glomerulo-nephritis, a not infrequent symptom of which is acute oedema of the glottis. Chondro-perichondritis, especially of the epiglottis, with partial necrosis caused by a common pyogenic agent, is not rare in soldiers attached to trains or doing automobile work. Injuries of the laryngo-tracheal tube hold a high place in the statistics of wounds of the upper part of the body. The so-called humanitarian bullet of modern warfare causes extensive lesions in the region of the neck, especially about the larynx and trachea, which cannot be immobilized like a fractured limb. Military life, especially on campaign, exposes soldiers suffering from faulty conformation of the naso-pharynx or predisposition of the adenoid tissue—palatine, lingual, pharyngeal, tonsillar, etc.—to inflammatory, hypertrophic and hyperplastic processes, which form a favourable soil for the development of pyogenic or infective germs, or for the lighting up of latent specific disease, such as tuberculosis and syphilis. In the examination of recruits care should be taken to weed out germ carriers, so as to avoid the development of grave epidemics—for instance, cerebro-spinal meningitis—among combatants. It used to be believed that adenoid growths were very rare in soldiers, but further observation has shown that they are fairly common, as in many men between 20 and 22 years of age the period of regression of the pharyngeal tonsil has not yet begun. In the treatment of inflammatory conditions caused by the irritation of cold air, asphyxiating gases, and smoke from guns Ferreri recommends inhalations, for which the ordinary mess tin can be used. This is filled with hot water, into which are poured some drops of a 5 per cent. alcoholic solution of balsam of Peru, 10 per cent. of tincture of benzoin, 5 per cent. of eucalyptus, 0.25 per cent. of menthol, 0.50 per cent. carbolic acid, 10 per cent. of laurel water, either separately or in combination. Sprays of solutions of sulphate of alum and potassium may be applied; or the following formula may be used: Sodium benzoate 2 grams, cocaine hypochlorate 20 cg., menthol 5 cg., pure alcohol 10 grams, distilled water 120 grams, laurel water 20 grams. Spraying should not be prolonged when the patient is fasting, as it is apt to cause cardiac disturbances and other reflex phenomena. Insufflations of powders into the larynx are useful because no complicated apparatus is required. Iodoform deodorized with essence of mint in the proportion of 5 drops per 1 gram may be used; tannin, aristol, or calomel may also be employed. For dysphagia and neuralgia medicated baths of the hypopharynx are preferable to ordinary gargles. The substances used may be officinal chloroform water or the following solution: Thymol 10 cg., basic cocaine 20 cg., menthol 20 cg., pure alcohol 100 grams, one coffeespoonful in a tumbler of tepid water; or salol 10 cg., basic cocaine 20 cg., menthol 10 cg., pure alcohol 100 grams, a coffeespoonful as before. Some of this is taken into the mouth and the head is bent backwards so that the occiput almost touches the upper part of the vertebral column; the liquid thus remains for some time in contact with the part. With a little practice this can be done without interference with the respiration. Soldiers should be told to avoid excess in alcohol, tobacco, hot or iced drinks, shouting and singing on the march; the exchange of glasses, tins, and other objects of personal use should be forbidden, and the mouth should be washed out from time to time with aniseed water. The affection to which soldiers are most subject is diffuse hyperaemia of the laryngeal mucosa, caused by breathing irritating vapours and powders, or by cold and rapid change of temperature. Men with chronic affections of the naso pharynx and those exhausted by gastro-intestinal disturbance are most susceptible. Oedema of the larynx often occurs after fatigue or exposure to irritating inhalations or taking very hot food, and it may be so acute as to threaten life within a few hours. It has sometimes been observed as a premonitory symptom of acute infections—erysipelas, typhoid, scarlatina. The prompt use of astringent sprays will generally give relief, but tracheotomy may be required. The author does not approve of intubation in such cases. In the way of general treatment bleeding, diuretics, and milk diet may be called for. Inflammation of the epiglottis, characterized by dysphagia, with pain shooting to the ear,

and a sense of a foreign body in the throat and some alteration in the voice, is a condition frequently observed in soldiers. The treatment is the same as for acute laryngitis. Abscess may follow either of these conditions, or may be the result of infection spreading from lesions of neighbouring parts. In mild cases the treatment is tepid antiseptic inhalations, revulsive applications to the neck and opening of the abscess, but if asphyxia seems to be impending tracheotomy will be required. Among other conditions that are apt to spread among troops are erysipelatous laryngitis and non-diphtheritic laryngitis with false membranes, in which the exudate is caused by the staphylococcus or pneumococcus. Treatment is the same as for acute inflammations of the throat; tracheotomy or intubation is seldom required and is best avoided, as these conditions are often followed by broncho-pulmonary disturbances. As regards diphtheria there is nothing special to soldiers. Tuberculosis of the larynx is frequent owing to fatigue and contagion. On the first suspicious sign the bacteriological diagnosis should be made, the patient should be speedily placed apart, and provisional local disinfection should be carried out by swabbing with a saturated solution of iodoform and ether after anaesthesia with cocaine. Perichondritis and chondro-perichondritis due to latent tuberculous processes are not uncommon. These may suddenly give rise to symptoms of asphyxia calling for tracheotomy. Specific syphilitic lesions are comparatively common, and are aggravated by cold, alcohol, smoke, etc. The spread of infection is facilitated by exchange of glasses and so forth. Under the influence of irritation by street dust, gas and smoke, the lesions of secondary syphilis are apt to ulcerate and become oedematous so as to simulate tuberculosis. Tertiary forms are less frequent. In secondary forms the object is to get rid of the contagious elements as quickly as possible; in tertiary to arrest the destructive process. The best way of doing this is by injections of neo-salvarsan and of calomel, 5 cg. in vaseline oil once a week, or of grey oil, three to four drops. If mercury is ill borne, biniodide or benzoate, 1 to 4 cg. per day, should be given. Locally the mouth should be disinfected with a solution of potassium chlorate. Tertiary cases, especially if tuberculosis accompanies the syphilis, should be sent to hospital.

61. Direct Laryngoscopy in War Wounds.

Guisez reported to the Académie de Médecine (*Bull. de l'Acad. de Méd.*, February 8th, 1916) that during eleven months of work as chief of the Oto-Laryngological Centre of the Tenth Region he had seen 32 cases of wound of the laryngo-tracheal tube—26 of the larynx and 6 of the trachea. In six cases there were well-defined oesophageal lesions, with foreign bodies lying immediately under the mucous lining. Direct laryngoscopy with the help of the tube spatula was of the greatest use in making possible diagnosis and effective intervention, as the larynx in all its parts was under the operator's hands. Under local anaesthesia the patient's head is placed in a position of forced extension, so that the axis of the larynx and that of the mouth are in the same straight line; the tube, the end of which pushes back the epiglottis and fixes it against the base of the tongue, is then introduced. The method is most useful in cases in which the sides of the pharynx fall inwards, and when the injury is situated at the anterior commissure. In two cases a portion of a vocal cord had been cut away, and in one of them the wound, which was altogether in the fore part, was hidden by a large epiglottis. Aphonia and dyspnoea are sometimes caused by scars, which deform the cords or bind them together, principally at the re-entering angle. In five cases there was a true web; in one case the scar, which was part of a vocal cord, extended to the subglottic region of the opposite side, where it lost itself in a very thick cicatricial tissue. These conditions could only have been discovered by direct examination, and by that method alone was it possible to see the subglottic lesions and fibro-cicatricial bands at the level of the cricoid ring. In one case the cause of a persistent dysphagia was discovered to be a large polypus resulting from a fungating wound made by a shell in the right supra-arytenoid region. In another case serious dyspnoea was due to a fungating tumour connected with the right subglottic region and caused by a fragment of shell which had fractured the left half of the cricoid cartilage. In both cases it was possible to remove these inflammatory tumours with straight punch-forceps. Direct examination further allowed the recognition in a patient with dyspnoea of a large fistulous intralaryngeal abscess immediately below the left vocal cord, due to rupture of the thyroid cartilage by shell. The man was cured by laryngostomy. The same method showed that this procedure was indicated in two cases in which there was serious stenosis of the glottic and crico-tracheal regions. Among lesions of the larynx paralysis was not rare. In four cases there was complete paralysis due to division of the trunk of the recurrent nerve and in two to division of the superior laryngeal nerve. The terminal expansions of these nerves were also injured in some cases. Direct examination with the help of the tube spatula offers the only means of recognizing such forms of paralysis and differentiating them from traumatic arytenoid ankylosis. The trachea may also be the seat of scars from perforating bullet wounds, sometimes with loss of substance due to shell injury, giving rise to very serious dyspnoea. Direct tracheoscopy enabled the author to make a precise diagnosis in three cases. In two of these there were starred cicatrices of one of the walls and in the other a true cicatricial valvular ring. Tracheoscopy allowed dilatation by circular electrolysis and exact localization indicating where tracheotomy should be done when necessary, or showing whether it was possible to act directly on the lesion by curative laryngo-tracheostomy. Direct examination of the oesophagus made it possible to recognize wounds of the gullet in five cases. In one patient on whom tracheotomy had to be performed for serious spasm of the glottis there was a phlegmon of the mouth and oesophagus, caused by a small fragment of shell embedded beneath its lining membrane. In three others there was grave cicatricial stenosis of the tube, in two in the upper, and in another in the lower third, caused by a bullet which had gone through the chest. In three others there was spasm of the oesophagus, in two at the upper, and in one at the lower end, all three due to irritation of the pneumogastric nerve, in the neighbourhood of which the projectile was lodged. In all these cases dilatation was carried out and treatment applied with the aid of the tube. In a few cases the endoscopic localization of foreign bodies was used to supplement the *x* rays. In one case a fragment of shell projected into the cavity of the gullet on the left wall a little below the upper end. In another it was lying between the oesophagus and the trachea at the level of the second ring, where it made a round projection on the posterior wall of the trachea. Intervention for the removal of foreign bodies was made easy by the use of the tube.

62. Transplantation of Cartilage in Plastic Surgery.

At a meeting of the Paris Surgical Society on October 27th, 1915 (*Bull. et mém. de la Soc. de Chir.*, November 2nd, 1915), H. Morestin read a paper on the use of cartilage for the repair of deformities caused by wounds. The method, he said, had for some time been employed in rhinoplasty, but had found a larger application in the surgery of the present war. Cartilage taken from any part would serve, but in practice the costal cartilages, particularly those of the sixth, seventh, and eighth ribs, were the most readily available. Resection of those cartilages was never followed by any ill effect if the intercostal musculo-aponeurotic layer was accurately reconstituted by means of deep and superficial sutures. The cartilage is easily trimmed with the bistoury to any shape that may be required. The transplanted fragments are grafted without difficulty, and adapt themselves with great rapidity to their new conditions of life. Not only is an immediately successful result the rule, but it is lasting. The grafted cartilage lives indefinitely without suffering absorption or appreciable diminution. Cartilage taken from another subject forms grafts as solid as those from the patient himself. But in this case Morestin is not quite sure that after a time they may not undergo some reduction. He grouped his cases in three categories: the filling in of breaches in the skull, of frontal depressions, and reconstitution of the upper orbital arch; reconstitution of the malar bone and the lower and outer parts of the orbit; and the repair of loss of substance in the lower maxillary bone. Morestin gave details of 23 cases in which the method was used, in most with gratifying success. In a later communication (ibid., February 15th, 1916) Morestin reported that he had repaired breaches in the skull with grafts of cartilage in a large number of cases. Some instances may be given by way of illustration. (1) An officer was wounded on October 1st, 1915, by a fragment of shell which struck the upper part of the frontal and the neighbouring part of the parietal bone on the right side. On the same day he was trephined. At the end of December he was admitted to the Rothschild hospital. The wound had then healed, but there was a loss of bone substance about the size of a two-franc piece at the site of which the scar, thin and depressed, was adherent to the brain. On January 3rd the author operated, using pieces of cartilage taken from a young soldier on whom he had performed rhinoplasty. Under local anaesthesia he excised the cicatrix, detaching

the scalp for some distance around the wound. The breach in the bone was filled up with bits of cartilage placed in apposition, and the integument brought together and sutured over them. Cure was complete at the end of a week; the breach remained firmly closed and the surface of the skull was regular. The grafted part could be pressed on, even forcibly, without causing any pain. (2) A soldier, aged 22, was wounded on November 2nd, 1915, by the bursting of a hand grenade, which struck the skull a little to the left of the middle line, at the junction of the occipital and parietal bones. He was trephined in an ambulance, when the foreign body and a number of splinters were removed. When admitted to the Val-de-Grâce hospital on November 23rd the wound was healing well, but there was a loss of substance in the skull nearly five centimetres in length by two and a half in breadth. It was oval in shape, the long axis running from before backwards. On January 18th Morestin operated under local anaesthesia, using the same procedure as in the first case. He filled up the breach with a large piece of cartilage taken from another patient, which had been preserved in sterilized milk for twenty-four hours. It was trimmed to fit the wound, and was not fixed except by the soft parts brought over it and hermetically stitched. At the end of a week no further dressing was needed. At the date of report scarcely a trace of the operation wound could be discovered among the hair, and the skull was smooth and offered a uniform resistance. Pressure over the site of the graft was painless. (3) A man wounded by a shrapnel bullet a little below the left frontal eminence was admitted to Val-de-Grâce on September 3rd, 1915. There was then a curvilinear scar at the lower part of the forehead, left by an operation performed soon after the infliction of the wound. At the inner part of the scar there was a fistula communicating with the left frontal sinus. There was a large loss of substance at the lower part of the frontal bone, with a corresponding deep depression where the pulsation of the brain could be felt and seen. The sight of the left eye was destroyed, although the eyeball looked normal. Radioscopy showed the projectile lodged in the left maxillary sinus. On September 17th it was extracted by Morestin, through an incision into the front wall of the sinus made through the vestibule of the mouth. The projectile was lodged in the lower part of the sinus. It was easily seized and drawn out with forceps. The vestibular wound was then completely reunited. The results were excellent, but the frontal fistula remained. Through it the left frontal sinus, or what was left of it, communicated with the exterior and a small drop of mucus or muco-purulent liquid was discharged every day. On November 22nd the inner part of the frontal cicatrix was removed, the fistulous track incised, and the sinus opened up and at once closed again by bringing the soft parts together and suturing them. This was followed by healing of the fistula. On December 21st the frontal scar was extirpated and the integuments mobilized. A considerable piece of cartilage taken from another subject and suitably trimmed was used to make an upper orbital arch exactly adapted to the edge of the breach. The wound was then closed hermetically. In a few days cicatrization was complete, and the deformity, except for slight mobility of the grafted piece on the neighbouring bone, has been completely corrected. (4) A soldier wounded by a shell on the right part of the forehead was brought to Val-de-Grâce on October 16th with a wound healing normally. It was like an irregular V in shape, the point being directed towards the eyebrow, which was divided into two unequal parts. There was an important loss of substance in the skull, and a cerebral hernia of the size of a large nut was seen in the centre of the wound. At the beginning of January there was a large irregular scar in the right half of the brow depressed in its centre and adherent to the brain. The scar was excised, the surrounding integuments widely mobilized, and the breach, which measured 4 by 5 cm., filled with pieces of cartilage from another subject. The results were satisfactory, the deformity being corrected except for the line of the scar, which was gradually disappearing at the date of report. (5) A soldier, aged 24, struck by a fragment of shell, was admitted to the Rothschild Hospital on March 22nd, 1915. Among other wounds he had a large one of the forehead with fracture and loss of substance in the skull. The wound had long healed, but there was a frightful scar with deep depression on the middle of the forehead. On January 22nd Morestin operated, filling in the breach, which was about the size of a two-franc piece, with cartilage. The scar was strongly adherent to the brain, and in dissecting it off the subarachnoid spaces were opened and a little cerebro-spinal fluid escaped. The breach was filled in with pieces adapted as accurately as possible to the wound, which was sutured hermetically. The result was excellent; the forehead was smooth and the natural shape. The strongest pressure could be made on the grafted part without causing any trouble. At a later meeting (ibid., February 29th, 1916) Morestin showed two other cases in which he had successfully corrected a large loss of substance in the frontal bone by the transplantion of cartilage.

63. Fractures of the Patella in War.

RENÉ LE FORT (*Bull. et mém. de la Soc. de Chir. de Paris*, August 3rd, 1915) has had under observation at base hospitals nine cases of fracture of the patella. He groups them in three categories—(1) simple fracture, (2) compound isolated fracture, (3) compound fractures accompanied by fractures of the condyles or the tibia. There was only one case of simple fracture, and in that one more serious injuries led to the fracture being overlooked at first. When discovered, operation was postponed because of the presence of severe septic wounds close to the knee, and when the operation had been performed these wounds interfered with the after-treatment, and prevented early movements of the joint being carried out. The operation was finally performed on the thirty-sixth day when the temperature was still 38.4° C. (101.1° F.) to 38.5° C. (101.3° F.); but in spite of all these drawbacks, and of there having been separation of the fragments of bone to the extent of two fingerbreadths, the patient when last seen was apparently on the way to complete recovery. There were three cases of compound isolated fracture. In one the patella was broken transversely into two main fragments, separated only by a few millimetres; each fragment was broken into several smaller pieces, held together by fibrous tissue. In view of the small separation and the relative integrity of the peri- and pre-patellar fibrous tissues suture was considered unnecessary. In another case there was little infection, and the wound healed rapidly, and operative treatment of the fracture could then be undertaken under conditions almost as satisfactory as in simple fracture. A peculiarity of the case was that the fractured ends of bone were found to be of almost double the normal thickness as a result of violent separation of the bony lamellae by the force of the projectile. The surfaces were brought together again by pressure with the fingers. In the third case a ball had passed through the patella and the knee-joint. Splint treatment was employed, and the patient apparently made a quick recovery. The case was seen by the author five weeks after the infliction of the wound, and movements of the joint were begun. It was then found that the functional loss of power was very great, and the condition was perhaps made worse by the fact that the patient accidentally received a blow on the knee on the second day of getting up. A radioscopic examination a month later showed a multiple fracture of the patella, with the interposition of an osseous fragment between the condyle and the posterior surface of the bone. At the operation a small amount of liquid was found in the joint. Some adhesions had formed which were easily detached by the finger, and a large osseous plaque 1.18 to 1.37 inches across, 0.39 to 0.47 inch in height, and 0.07 to 0.11 inch in thickness, was removed in three pieces from the anterior surface of the condyle by means of scissors. Movements were begun forty-eight hours after the operation, and when the patient was last seen complete recovery seemed probable. Thus in all three cases complete restoration of function was expected. All three were cases of comminuted fracture. None suffered from acute arthritis; in two cases the wounds were infected, but the joint did not react, clinically at any rate; in the third there was a certain amount of plastic arthritis, perhaps connected with the secondary traumatism. In five cases compound fracture of the patella was accompanied by fracture of the condyles or the tibia. The first was not seen by the author until seven weeks after the injury, and a few days later it was necessary to amputate for an acute arthritis. In each of the remaining four cases the limb was preserved. One patient underwent total resection of the patella seventeen days after the accident and ten days before coming into hospital. The immediate results of the operation were unsatisfactory, but cure with ankylosis was almost obtained when the patient, who suffered from phthisis, developed meningitis and died. In each of the three remaining cases a certain amount of movement at the knee was preserved. There was a suppurating arthritis in the first two cases, and each of these was treated by a classical arthrotomy. The third case was less seriously infected, and splint treatment, instead of operative treatment, proved to be sufficient.

64. Shrapnel Bullet in the Heart.

RICHARD FREUND and CARL CASPERSOHN (*Muench. med. Woch.*, August 31st, 1915; abstract in *Amer. Journ. of Surgery*, February, 1916) report a case of bullet wound of the heart. The patient was a soldier, aged 20, who was struck by a shrapnel bullet in the region of the left lobe of the liver while bending forward. When he came under the care of the authors, a fortnight later, he seemed to suffer no distress referable to interference with the action of the heart. His pulse was 72 and regular; there was no dyspnoea, and no cyanosis. An *x*-ray examination showed that the bullet was lodged 7 cm. from the front wall of the chest in the region of the right ventricle; it followed the motions of the heart in all positions assumed by the patient, but had no independent motion. Deep inspiration caused it to move upward somewhat and on expiration it moved downward and seemed to lodge in the deepest part of the right ventricle near the septum. As the right ventricular wall averages from 3 to 6 mm. in thickness, and the shrapnel bullet 13 mm., the authors were led to the conclusion that the bullet must have lodged within the right ventricle. On operation they found this to be the case. The chest wall was opened by flap wound, and an incision 8 cm. long was made into the pericardium, the left pleura being separated gently and retracted with a gauze compress. The heart was held with the left hand and brought forward; the bullet was located in the right ventricle. A small incision was made immediately over it, and at the depth of 4 mm. the knife touched the bullet. It was displaced with the blunt end of the knife and extracted. The bleeding, which was free, was immediately controlled with the left hand, and four sutures were rapidly passed through the opening to the endocardium and the knot tied by an assistant. The pericardium was also sewn up with silk stitches (ten in number), a small opening being left at the lower angle for drainage, and the chest flap restored in typical manner. There was no haemorrhage. The rubber drain was removed after three days, as it caused irregular action of the heart. The bandage was removed on the fourth day. After this the pulse again became irregular, breathing was more difficult, and there was oppression of the chest. This was found to be due to an accumulation of serum within the pericardium, which was relieved by reintroduction of the drain. Convalescence went on uninterruptedly except for an attack of suppurative parotitis on the left side, for which incision and drainage were required. In four weeks the patient was able to leave his bed, and in two months was quite well.

65. X-Ray Picture of Gas Phlegmons.

B. DÖHNER (*Muench. med. Woch.*, September 21st, 1915; abstract in *Amer. Journ. of Surgery*, February, 1916) found dark spots in the *x*-ray picture of gunshot wounds, indicating the presence of gas phlegmons. He cites the case of a soldier wounded in the thigh, in whom twenty hours afterwards the *x* ray revealed two dark shadows. Operation revealed a deep-seated foul-smelling gas phlegmon, and fragments of clothing surrounding the bullet close to the femur. The wound had presented no alarming phenomena, nor was the track made by the bullet particularly unhealthy. The man made a good recovery. In view of the dangerous course of gas phlegmons Döhner recommends the early use of the *x* ray for diagnosis in every case of gunshot wound. This, he holds, is quite as important as early antitetanus inoculation.

THERAPEUTICS.

66. Treatment of Nervous Disorder in Soldiers.

CHAVIGNY (*Paris méd.*, January 1st, 1916) deals with the treatment of mental and nervous disorders in men on active service. Early treatment is an essential condition of success. Cases of mental confusion, deaf-mutism, and paralysis treated within four or five days of onset are generally cured in twelve or twenty-four hours. On the other hand, in men who have been kept under observation without active treatment for several weeks, recovery was much slower. Whenever any objective lesion coexists with the subjective disturbance, both conditions must be treated at the same time. For instance, if a patient with hysterical paralysis of a limb suffers also from dyspepsia, the digestive disorder should be energetically treated as well as the nervous trouble. In all cases of hysterical paralysis progressive re-education is the basis of treatment. But medicine should also be given to act on the mind; for this purpose a draught containing 1.50 gram of eucalyptol is recommended by Chavigny. When the nervous trouble is accompanied by anaesthesia, re-education of the sensibility of the skin or special sense is called for. Hysterical coxalgia and hysterical paralysis of limbs get well unfailingly as soon as sensibility is restored in the anaesthetic areas adjoining the affected part. This is effected by means of the faradic current. Among the first cases treated Chavigny noted some in which the strongest faradization produced no effect. He has since applied the current in the following manner: Following indications given by the patient, the boundary line separating the part towards the root of the limb in which sensation is intact from the anaesthetic zone is determined and marked out with ink on the skin. The electrodes are then carried towards the line, sometimes encroaching on the sensitive area, sometimes being brought down over the anaesthetic patch. In a few minutes sensibility becomes normal over a band measuring some centimetres. The new limit of sensibility is then marked off, and the treatment is repeated either in the evening or on the following day. Progress is regularly recorded, and after a few sittings it is found that the anaesthesia has disappeared. This is invariably followed by disappearance of paralysis or hyperaesthesia in the limb. Chavigny, while admitting the possibility of the effect being due to suggestion, insists that the method is "efficacious, invariably efficacious, rapidly efficacious." He has treated deafness when it seemed to be of nervous origin by re-education. The apparatus employed is a large tuning-fork with strong vibrations. This is applied to the vertex or the mastoid process. Two or three daily sittings of vibratory massage by this method usually bring about rapid improvement. Musical re-education with the aid of a harmonium or other instrument with loud vibrations is employed at the same time. At the first sittings the patient applies his ear directly to the case and tries to perceive the vibrations. As hearing improves he gradually increases the distance from his ear. By this method of re-education Chavigny claims to have cured cases of relatively old standing which have been treated in other ways without success. In cases of dumbness the movements of speech have been forgotten and must be learnt anew. The doctor, placing himself in front of the patient, asks him in writing or by word of mouth, according as the man is deaf or not, to make with him the movements necessary for the production of the sound *a*. At the moment when he gives the signal for this effort he passes a faradic current of medium intensity through the front of the patient's neck in the prelaryngeal zone. After this other vowel sounds are attacked; then syllables, such as *ba*, *bo*, for the production of which very visible movements of the lips are required. The success of the method is said to be "absolute," and most patients can speak distinctly after one or two sittings. If a faradic battery is not available, the procedure which goes by the name of Garel of Lyons can be employed. At the moment when the patient attempts to imitate the movements of the doctor's lips, the latter presses his closed fist firmly on the man's epigastrium. This sudden and unexpected pressure almost invariably leads to the production of the sound *a*. Stammering of emotional origin requires special gymnastic treatment—rhythmical breathing, vocal sounds produced in measured time, combined with movements of the arms or trunk, lastly singing with musical accompaniment. In paralysis of limbs re-education of movement is carried out by re education of sensibility. This should be combined with gymnastics progressive in range, the handling of weights of increasing heaviness, etc. Tics, tremors, and chorea, hystero-traumatic in origin, are successfully dealt with by gymnastic exercises. The patient executes carefully measured movements directed to antagonize the involuntary movements. He also practises immobility, trying before a glass to keep himself at rest, at first for short periods which are gradually prolonged. Psychical disturbances following great explosions occur mainly in the form of mental confusion and delusions. In 95 per cent. of cases those conditions are rapidly curable. Of 60 cases treated by Chavigny, only 2 had to be placed in confinement. All the others got well in six days at the outside; this fact he regards as an argument in favour of the treatment of such cases in a hospital ward rather than an asylum. The treatment consists in keeping the patient quiet in bed, with purgation when there is constipation or diarrhoea, and tepid or cold douches. When the mental disturbance is passing off the cure may be accelerated by subjecting the patient to a slight emotional shock, as by speaking to him about his family. By this means Chavigny has several times seen men roused from a state of almost absolute indifference to surprising lucidity. The change was due to the effort they were induced to make to write or dictate a few words home.

AN EPITOME OF CURRENT MEDICAL LITERATURE.

War Number.

MEDICINE.

67. Acute Nephritis in Soldiers on Active Service.

M. GAUD and P. MAURIAC (*Paris méd.*, April 15th, 1916) record their observations on acute nephritis as seen in a large number of patients brought to an evacuation hospital from three army corps between September and November, 1915. There were 130 cases in a total of 2,000 patients, not including men suffering from chronic nephritis or from albuminuria developed in the course of paratyphoid, pneumonia, diphtheria, or other infectious states. The number of cases of acute nephritis observed daily increased in a marked degree in January and February, 1916. They never observed atypical cases; with differences of gravity the patients presented a uniform symptomatology and the same essential features. In general a soldier who had previously been in good health began to complain of fatigue, obstinate headache, pains in the loins, and a slight feeling of oppression. In two cases there were digestive phenomena—anorexia and vomiting. This prodromatous stage lasted from three to six days. Suddenly, in a few hours, oedema supervened. In many cases, as the general phenomena were not well marked, it was the infiltration of the limbs or face which made the patient apply for treatment; often attention was first called by comrades to the swelling of the face. When the disease was established, in almost all cases the general condition remained very good even when the symptoms were strongly marked. Fever was the rule in the first days, varying from 37.5° to 38.5° C., the maximum figure. The oedema was almost constant, and often invaded the face, the upper and lower limbs and the scrotum. It was most marked on the face. The authors never observed ascites or hydrothorax. Except for slight pains in the loins at the outset, clinical examination of the urinary apparatus was most often negative, but as regards the urine itself in the early stage there was oliguria, the patient passing from 500 to 800 grams of urine thick, often muddy, and of high colour. This rapidly passed away, a fact which explains that it seemed to be wanting in subjects who had come rather late to hospital. Chemical examination showed albumin from 2 to 5 grams in the litre on the average, but frequently from 10 to 15 grams. In one case there were 45 grams to the litre and 67 in the twenty-four hours, although there were no pus globules, and red corpuscles were rare. Microscopic examination showed epithelial cells, epithelial and granular cylinders, and some red corpuscles. In three cases the corpuscles were abundant and the urine distinctly haemorrhagic. The pulse was regular, rather fast and weak. On auscultation the *bruit de galop* was sometimes noticed in the graver cases. In the respiratory apparatus there was generally nothing of note, but in some patients fine râles were noticed at the two bases without expectoration. There was no pleural effusion. In only one case was vomiting noticed, and that rapidly ceased. The anorexia of onset was transient, and after one or two days of rest all the patients demanded food. Stools were normal, but in one case there was blood in the faecal matter as well as in the urine. No symptom referable to the liver. The organs of the senses showed nothing noteworthy. Under the influence of rest and milk diet the evolution of the disease was rapid, its course being a fortnight on the average. Fever subsided in five or six days, but in several cases the fall of temperature was interrupted by slight rises constantly accompanied by an increase of albumin. Oedema rapidly vanished, the face being the last to clear. The amount of urine increases progressively, and the patient passes 2 to 2½ litres in the twenty-four hours. The albumin diminishes gradually, passing in a week from 5.6 grams to 0.75, 0.50, 0.25. Several times it disappeared altogether. In cases of massive albuminuria the evolution is somewhat longer; but, setting these exceptional cases aside, all the patients were discharged with less than 0.25 gram of albumin notwithstanding a partial return to ordinary diet. Arterial tension showed a decreasing curve, returning to normal in a few days. With regard to the classification of clinical forms, the authors would only retain that marked by serious and somewhat dramatic onset, with considerable oedema and marked dyspnoea, cyanosis, and slight pulmonary congestion and oedema. But these cases are differentiated from the normal type only by exaggeration of the symptoms, and none of the cases observed by them resisted a milk diet for more than four weeks—milk diet and rest, and the administration of 0.50 gram of theobromine in twenty-four hours. This was the only remedy used in all their cases. There were practically no complications with the exception of grave uraemia. In one the patient was brought in comatose with very severe convulsive crises. There were 8 grams of albumin in the litre of urine. Two venesections brought about an immediate improvement, and four days after admission the man was clamouring to rejoin his regiment, that he might eat and smoke. He was discharged in two weeks in very good condition but with traces of albumin in the urine. In a second case, with the same symptoms, the patient died in thirty-six hours in spite of free venesection. This is the only case of death in the series. The authors conclude from their experience that the disease, at least in the phase in which they saw it, has a relatively favourable prognosis. But they hesitate to pronounce whether the patients would remain permanently free from albuminuria or become chronic nephritics. They bear strong testimony to the benefit derived by their patients from early treatment and rest. They hold that the men should not be exposed to chills and fatigue from long transport. They think their favourable results were due to the proximity of their hospital to the front. They sum up as follows: In troops on campaign there is a type of acute nephritis remarkable by its frequency, the considerable amount of albumin in the urine, the infectious course, and rapid evolution which is most often mild from the first. Fatigue, overwork, and defective food seem to create in soldiers a favourable soil, and in particular to make the kidney a frail and badly defended organ. The proof of this is the high proportion of men who have albuminuria without suffering any inconvenience till an infection comes which at once strikes the weak point—namely, the kidney. There are, perhaps, many germs to be held responsible. In the blood of two patients and the urine of three others the authors isolated bacilli approximating in character to the organisms of typhoid and paratyphoid. Their researches, though not allowing them to consider these germs as constant factors, seem to them to prove that at the outset there is, at least in certain cases, an infectious cause.

68. Extrasystoles after Injury by Shrapnel.

O. JOSUÉ and JEAN HEITZ (*Arch. des mal. du coeur, des vaisseaux et du sang*, 1915) have made a careful study of a case of attacks of extrasystoles in a soldier who was wounded by a shrapnel bullet in the neck. The wound appeared to involve the ninth, tenth, eleventh, and twelfth cranial nerves on the left side, and gave rise to different paralyses—pharyngeal, laryngeal, spinal, and labial—and to disturbances of the pupil, in addition to the cardiac symptoms. The man was first seen by the authors eight months after the infliction of the wound. The respiratory system, and, in repose, the heart also, appeared to be normal; the pulse-rate was 76 to 80. The maximum arterial tension varied from 9 to 13.5 by the Riva-Rocci method. The special troubles of rhythm were only caused by exercise, as when the patient walked a little quickly or walked upstairs. With exercise, the pulse-rate rose to 120 or more. If the patient then sat or lay down, the rate fell progressively to 90 and 80, and at the end of three or four minutes intermittence developed. This phenomenon occurred constantly after exercise following on a period of rest, but it could not be provoked if the exercise were at once repeated, though on one or two occasions, if the exercise were repeated a few minutes after the disappearance of the extrasystoles, there was a slight return of the attack in a modified form. As a rule, the crises last only from one and a half to two minutes. On two occasions a crisis was prolonged to six or six and a half minutes by pressure on the ocular globes. Inhalation of amyl nitrite brought the crises instantaneously to an end.

and the injection of atropine beforehand greatly shortened the attacks. The Wassermann reaction was positive, but there was no obtainable history of syphilis nor any signs of it, and a course of treatment by injections of biniodide of mercury had no influence upon the extrasystolic crises. A number of tracings were taken with Mackenzie's apparatus. Two of these showed that the pulsations which followed the extrasystoles were equal in height to the others, and that there was a complete absence of the post extrasystolic alternance seen when the myocardiac function is sensibly altered. Electro-diagrams gave important results. The extrasystoles were shown to be, for the most part, different forms of the diphasic type, the first variation being directed upwards and the second one, much less pronounced in height, directed downwards. Extrasystoles of this type are held to originate from the base of the right ventricle. Other extrasystoles, which were distinguished by their reduced height and shorter duration, approach very nearly those obtained by Lewis from excitation of the anterior surface of the right auricle. At intervals tracings were obtained of extrasystoles which originated from the lower part of the auriculo-ventricular bundle. Two tracings showed a combination of extrasystoles of all origins separated by shorter or longer intervals, but with no normal systole, ventricular or auricular, interposed amongst them. The result is therefore as if there existed in the myocardium different small areas, distributed from above the auriculo-ventricular bundle to the middle part of the right ventricle, from which the extrasystoles originated. With regard to causation, syphilis is negatived by the history of the case, and by the absence of any stigmata, of any result from antisyphilitic treatment, and of post extrasystolic alternance. If it be accepted that the extrasystoles were of nervous origin, excitation of the sympathetic fibres or of the vagus might be held responsible. Physiological experiments have shown that extrasystoles of the type met with in this case can be produced by excitation of the sympathetic fibres. On the other hand, the effect of amyl nitrite, atropine and ocular compression is principally upon the vagus nerve, while recent workers have shown that the left vagus acts more especially on the auriculo-ventricular bundle and the ventricle. But although two or three isolated cases appear to point to a different conclusion, orthodox opinion does not accept the production of extrasystolic crises as among the consequences of excitation of the vagus; and in this case, although ocular compression prolonged a crisis, the crises were regularly produced and only produced by exercise. During the earlier stages of the illness the patient had suffered from nocturnal attacks of dyspnoea and cardiac disturbance apparently similar to those seen by the authors. This fact is of interest, since it is recognized that during sleep disturbances of the cardiac function are experienced which are similar to those caused by fatigue during the day. The prognosis in this case is guarded because of the extent of the irritable zone existing in the myocardium.

69. Tremor in Soldiers.

AT a meeting of the Medical Society of Leipzig N. v. MAYENDORF (*Muench. med. Woch.*, February 29th, 1916) drew attention to the frequency with which different kinds of tremor were found in military hospitals. He recognized three classes of tremor showing distinctive clinical features. In the first there was tremor of the right arm when the elbow was flexed to a right angle or when the arm hung freely down; it was characterized by rhythmic oscillations with wide excursions. This form of tremor was sometimes the only symptom; at other times it was accompanied by well-defined hysterical phenomena, the arm in such cases being anaesthetic. There was no limitation of movement of this arm, no contractures, and no increase of the tendon reflexes. In the second class also the tremor showed wide excursions. It affected both legs, increasing and decreasing in intensity, and being usually accompanied by analgesia extending upwards as far as to the upper border of the patella. When the patellar reflexes were increased there was no corresponding increase of the Achilles reflexes or accentuation of Babinski's sign. The apparent limitation of movements about the knee-joints on passive movement was due to muscular contractions. The tremor diminished on walking, and was least when the legs were flexed at the knee to a right angle, when the patient sat on the edge of his bed, or when he stood up. To tremor of this variety might be applied the term "static tremor." In the third class there was general clonus, which either persisted as such or developed into tremor, limited to certain extremities, when the patient was subjected to severe exertion or other stimuli. The clonus of the right arm exceeded in intensity the contractions of any of the other groups of muscles. In every case in this class the mental condition was much affected. Mayendorf had also seen one case of isolated tremor of the muscles of one side of the neck and one case of isolated tremor of one side of the face. In both these cases the affected parts were also analgesic. Discussing the etiology of these tremors, he suggested that there were many contributory factors, such as shell concussion, standing in water for hours, falls from horseback or carts, projectile wounds, etc. In only very few cases was there a psychogenetic basis to account for these symptoms, and on this account they should be regarded rather as a commotion neurosis due to physical concussion of the central nervous system than as an hysterical manifestation. As for the teaching that these tremors could be cured by suggestion, he had found that the results of this treatment were only transitory, the basic disease being unaffected by hypnosis. Accordingly he was very doubtful as to the wisdom of sending back to active service patients "cured" by this method. All these forms of tremor could easily be imitated. To distinguish between the true sufferer and the malingerer it was not enough to rely on certain trick tests, but every factor in the case, including the patient's personality, should be carefully analysed. It was, however, possible at once to exclude malingering when the tremor was continuous for several hours.

SURGERY.

70. Extraction of Projectiles from Lung.

AT a meeting of the Paris Surgical Society on September 8th, 1915 (*Bull. et mém. de la Soc. de Chir.*, September 21st, 1915), G. MARION presented a soldier from whom he had extracted a bullet lodged in the lung at the depth of 9 cm. including the chest wall, and lying in contact with the left auricle. The case showed that the removal of projectiles from the lungs was easy, and not a severe procedure. Marion, who at first shared the general opinion as to the danger of the operation, was led gradually to the belief that all cases without exception could be dealt with. At first he operated only in cases in which the foreign body had produced foci of suppuration with adhesions to the chest wall. Later, after having removed projectiles lodged at a depth of 1 or 2 cm. in the lung substance, he went on to extract them at a depth of 7 cm., and he found that the operation was neither more difficult nor more serious. Discussing the risks caused by a foreign body embedded in the lung, Marion says that in two cases in which the patients only complained of some difficulty in breathing, he found the projectile encysted in an abscess from which pus escaped when the lung was incised. The technique is simple. Having localized the projectile, an incision is made parallel to the nearest rib above or below it; the rib is resected for a length of 4 or 5 cm.; the lung is next stitched to the chest wall with a Reverdin needle and three or four threads of catgut over the area of the rectangle which forms the field of operation bounded above and below by a rib and laterally by the ends of the resected rib. The lung is then incised, and the finger is pushed in, no heed being taken of bleeding or air bubbles. When the projectile is reached, it is seized with the finger bent to the form of a hook, and pulled out, regardless of tearing the lung; if it cannot be caught with the finger, the parenchyma is drawn out with Kocher's forceps while the projectile is pushed out with the index finger; when brought to the chest wall it is removed with the help of a grooved director or a bistoury. Finally the wound in the lung is plugged with a compress soaked in strong carbolic solution, and an ordinary dressing is applied to the one in the chest wall. In no case has the operation caused any trouble except some coughing with expulsion of a small amount of blood; this soon ceased. The patients were generally able to leave their beds in three or four days. The plug is removed from the lung wound on the fourth or fifth day; according to its depth it takes from a fortnight to a month to cicatrize completely. Marion said he had operated in twenty-seven cases, in only one of which he was unable to extract the projectile; this failure he attributes to his not having fixed the lung before opening the pleura, as he has always done since. Of the twenty-six projectiles removed seventeen were bullets, five fragments of shell, and five shrapnel bullets. In seventeen cases the projectile was encysted in the lung, free from any adhesion, and lying at a depth varying from one to seven centimetres. In four cases there were adhesions between the lung and the pleura, and the foreign body was in the middle of them; in three

it lay in an encysted purulent focus, the existence of which nothing in the patient's condition led the surgeon to suspect. In a further communication Marion (Ibid., December 1st, 1915) said he had then operated in forty-three cases, and had never seen serious bleeding. In no case up to the date of report had the operation been followed by any ill effect. He had never had to deal with multiple projectiles, but if he met with such a case, and if all the foreign bodies were lodged in the same lobe, he would try to remove them by drawing out the lung. If they were scattered about in the parenchyma, he would take into account their size, the symptoms produced by them, and the lesions disclosed by radioscopy. In a paper read before the same society on November 10th, 1915, PIERRE DUVAL (Ibid., November 16th, 1915) stated that he removed projectiles from the lung in fourteen cases. He agreed with Marion that such foreign bodies should always be extracted, but he used a different technique. The projectile might lie in a portion of lung adherent to the chest wall with or without a cutaneous fistula; or it might be lodged in non-adherent lung. In the latter case the patients complained of persistent deep-seated pain in the chest, which did not always correspond with the situation of the foreign body. The respiratory movements were short and jerky; both the pain and the dyspnoea were aggravated by effort. These symptoms made the men unfit for military service. Duval criticized Marion's technique, especially the thrusting of the finger into the lung, which he thought not only caused laceration of the parenchyma but extensive haemorrhagic infiltrations. In three cases he deliberately opened the pleura, produced a total progressive pneumothorax, drew the pulmonary lobe out of the chest, palpated and found the projectile, cut down on it through the part where there was least lung substance to traverse, extracted the foreign body, sutured the wound in the lung, which was replaced in the thorax, completely stitched up the chest wall and aspirated the intrapleural air by puncture. In a week the patients were able to leave their beds, and in a fortnight cure was complete. Auscultation and percussion showed an absolutely normal state of things. In twenty odd cases he had one death from double pneumonia following the operation; the projectile was lodged in a piece of lung adherent to the chest wall. Full details of the cases were given. At a meeting of the same society on January 26th, 1916 (Ibid., February 1st, 1916), PL. MAUCLAIRE showed five cases in which removal of projectiles from the lung had been followed by haemoptysis, serous effusion into the pleura or extensive pneumothorax. These complications were not severe, but this might not always be the case. For that reason he thought that surgical intervention was called for only when the foreign body caused great pain, repeated effusion, or pulmonary congestion. Patients should be kept under observation for some time. With regard to the operative procedure, Mauclaire said that if the incision of the pleura were small, pneumothorax might be avoided. The expansion of the lung could be helped by directing the patient to make long expirations while pinching his nose; this closed the glottis, and pushed the lung towards the chest wall.

At a meeting of the Société de Médecine et de Chirurgie de Bordeaux on January 21st (*Gaz. hebdom. des sci. méd.*, April 2nd and 16th, 1916) PETIT DE LA VILLÉON read a communication in which he stated that in a surgical service in the principal naval hospital at Brest under his direction he had among 1,700 wounded men treated by him about 80 cases of penetrating wound of the chest. In a large proportion of these fragments of projectiles were lodged in the lung. During the first year of the war he acted on the doctrine of non-intervention, but further experience led him to change his mind. His first operation for extraction of the foreign body was done on June 3rd, 1915. At that time Marion was the only surgeon in France who had extracted projectiles from the lung, and his results were still unpublished. Petit de la Villéon operated in 10 cases, in all with a successful result. He employed two different procedures—thoracotomy with resection of ribs and incision into the lung, removal of the projectile, followed by pleuropulmonary suture, and restoration of the chest wall; and extraction under the radioscopic screen. While each of these procedures has its advantages, the author prefers the screen operation on account of its simplicity, safety, and rapidity; it takes only a few minutes, more often only a few seconds. The local post-operative reaction was almost insignificant, and all the patients were able to leave their beds on the fourth or fifth day. Petit de la Villéon's experience has convinced him that the lung is a very tolerant organ, which with proper precautions can be freely operated on without danger.

71. Extraction of Projectile from the Heart.

A. BEAUSSENAT reported to the Académie de Médecine (*Bulletin*, May 6th, 1915; *Il Morgagni*, March 31st, 1916) the case of a young sergeant operated on for a wound of the heart caused by a projectile which had remained free in the right ventricle, and was extracted four months and a half after the infliction of the wound. The patient was struck on October 1st, 1914, by a fragment of grenade which, passing through the diaphragm, the pericardium, and the whole thickness of the cardiac muscle, penetrated into the right ventricle. It measured one and a half centimetres in length by one and a half in breadth and three millimetres in thickness; it weighed 15 grams. It was extracted on February 17th, 1915. The heart was opened and the projectile was seized, not without difficulty, with forceps and removed. The heart was immediately sutured. In three days intense dyspnoea came on with grave symptoms of collapse. There was moderate fever with slight pulmonary symptoms, which disappeared in a few days. A month after the operation the patient could be regarded as absolutely cured, and at the date of report the heart's action was normal and the cure seemed to be definitive. Two similar cases are, says Beaussenat, on record, one published in 1909 the other in 1910. These showed the prolonged tolerance by the heart in regard to metallic foreign bodies, as in one the patient died after four months and a half, the second after seven months. In these cases, however, no operation was done, and the projectiles were only found at the autopsy. [In the EPITOME of January 29th, 1916, par. 36, there is a short account of an unsuccessful attempt to remove a fragment of shell from the right ventricle; and in the number for April 8th there is a report of a case in which a shrapnel bullet was extracted from the same cavity.]

72. Gas Gangrene.

V. MARCONI reports (*Giornale di Medicina Militare*, October, 1915; *Il Morgagni*, April 5th, 1916) seventeen cases of gas gangrene treated in an Italian field hospital. Among them were three cases of comminuted fracture of the femur caused by hand grenade, rifle bullet, and shrapnel. In four other cases, in addition to compound fractures of the bones of limbs, there was injury to blood vessels, which had necessitated the application of the elastic bandage for periods varying from four to six hours; these were also grenade and gunshot wounds. In one case there was a fracture of the tibia by a shrapnel bullet; in another a joint was injured by grenade. In three other cases vessels had been seriously injured by gunshot or shrapnel and had been treated at the dressing station with the elastic bandage, which had been kept on for periods varying from three to eight hours. In the remaining five cases there were lesions of soft tissues by projectiles without damage to bone or vessels. The symptoms were of all degrees of severity, the gravest being in cases of large lacerated wounds with extensive separation of tissue caused by fragments of grenade or shrapnel, which always carried much infective material. The phenomena of gas infection were always most violent in cases in which the elastic bandage had been left on for a long time. On the other hand, in the case of wounds of soft parts, the infection was limited and easily neutralized. The greatest virulence was caused by fragments of grenade; next came shrapnel, which almost always carried into the body all the bits of clothing it might meet. In the case of men who have lived in trenches for months it may readily be conceived that these are not aseptic. Bullet wounds play a large part in the production of infection when there is smashing of bone and shock. The elastic ligature applied for many hours causes a lessened vitality in the tissues, thus facilitating the attack of pathogenic germs, which, on the other hand, with a good supply of blood, by the rapid establishment of collateral circulation, would be overcome. Marconi holds that the surgeon should not wait for attenuation of the process by mild measures. If improvement is not obtained quickly, there should be no hesitation about energetic intervention, because the saving of life or its loss is often a question of a few hours. If the process is limited, the thermo-cautery should be freely applied, together with disinfectants which can penetrate throughout the windings of the wound. In severe wounds, even when important vessels have been injured, it is not necessary always to apply the "fatal haemostatic ligature." Efficient plugging with a compressive bandage is in most cases sufficient. The elastic ligature should be used only in extreme cases and for a short time, never more than two hours, otherwise the patient is in danger of losing his limb by gas gangrene. When the gangrene develops there ought to be no hesitation about amputation.

GIOVANNI TIENGO (*Il Policlinico*, sez. pratica, April 16th, 1916) reports three cases of gas gangrene, two of which were cured, and one died. All the cases presented the characteristic local symptoms—emphysema, yellowish-red discoloration of the skin, fetor and reddish tint of the discharge, necrotic muscular foci, and great pain, with crepitus on palpation. At first this is the only symptom that reveals emphysema, but if no intervention is made within the first two or three days, a great increase in size takes place, which in the limbs is almost uniform and symmetrical, and not partial, such as might be due to a purulent accumulation or to an emphysema of different origin; this extends progressively to the root of the limb or to the abdomen, buttocks, and loins, up to the ribs. Whilst on the abdomen it is not very manifest, it may assume large dimensions on the buttocks and loins. This diversity of development of the emphysema is due to the fact that on the buttocks and loin there are large muscular masses. The formation of gas occurs in the necrotic foci produced in the substance of the muscles, and from these the gas, separating the fibres, escapes, together with liquid products, into the area of the wound, from which they may be seen to issue, sometimes with a gurgling sound. Longitudinal incisions should be made from the wound or above it if the emphysema extends up to the root of the limb and in the gluteal region down to the muscles. Then with the finger or a blunt instrument the muscular fibres or bundles should be separated so as to penetrate into the various foci of gangrene. These should be freely opened, scraped, and irrigated with calcium hypochlorite and drains of gauze or tubes inserted. In this way the progress of the disease is arrested without having recourse to amputation or other disabling operation.

At the Royal Medical Academy of Rome on February 27th, 1916 (Ibid., April 16th, 1916) N. LEOTTA insisted on the importance of the elastic bandage in cases of gas gangrene. But it should not be applied unreasonably, and the surgeon should always be ready to take it off at once if necessary. On the basis of his own experience, Leotta showed that the number of gangrenous foci could be notably reduced by early and free opening up of the wound at the first sign of septic complication. Among the patients brought to his hospital the percentage of gangrene had been less than 1 per cent. When gangrene does occur and is quickly diagnosed, it is always possible to save life and limb by cauterization with the red-hot iron. He recalled how recently Querci had recourse to cauterization with a current of hot air of 600° by means of Gaiffe's apparatus, which acts in a way identical with that of the hot iron. But Querci's results were inferior to those obtained by himself in his field hospital. He had never performed an amputation for gas gangrene and had not lost a single patient attacked by the disease. In nine cases he obtained a cure without amputation. In the discussion DURANTE said that he had long used the red-hot iron for the cure of gas gangrene. The results had always been satisfactory.

Captain L. B. CANE, R.A.M.C., records (*St. Bart's Hospital Reports*, March, 1916) the case of a soldier, aged 22, admitted to H.M.S. *Devanha* on August 29th, 1915, from Suvla Bay with "pyrexia of uncertain origin." On September 22nd he complained of pain in the right forearm, which showed the typical symptoms of gas gangrene, extending to about 2 in. above the elbow-joint. There was no trace of any wound or abrasion. Circular amputation was performed at the level of the insertion of the deltoid, some frothy serum escaping at one point where the involved area was encroached upon. The brachial artery was not blocked. No sutures were applied. The patient died about six hours later. An incision made into the amputated limb liberated much gas and frothy serum, not particularly offensive, and there was no pus. There was no other case of gas gangrene on the *Devanha* at the time, nor did any case develop afterwards.

PATHOLOGY.

73. Gas Bacillus Infection.

FAUNTLEROY (*Annals of Surgery*, January, 1916) points out that the *Bacillus perfringens* is practically always present in the discharges and tissues of all wounds in the present war, and being also present in the soil-stained clothing its access to the wounds is easily understood. A fatal case of gas bacillus infection passes through the stages of injury, infection, localized necrosis, progressive gas production, circulatory disturbance, increased virulence, and septicaemia, and it is essential for the growth of the organism that there should be a certain amount of devitalized tissue in the wound, the toxins formed exerting a selective action on the planes of connective tissue, travelling most rapidly along the fascial planes. In the earlier stages there is usually nothing to indicate the gravity of the process, but in from two to five days a small degree of swelling develops, and palpation elicits the presence of gas in the tissues, and some loss of tissue elasticity resembling induration. A slowly progressive copper-coloured mottling of the skin adjacent to the wound follows, and a characteristic fetid odour resembling dead fish becomes noticeable, the discharge being of a thin, sero-sanguineous character, with later the development of crops of vesicles varying from the size of a pea to several inches in diameter. Although in the earlier stages of the infection a pulse may be present in one of the arteries distal to the wound it becomes progressively weaker, and in the last stage is always absent. A rising pulse-rate, usually out of proportion to the degree of fever, is highly suggestive of the first grade of infection in view of the usual febrile response to other wound infections in which the pulse-rate is usually in direct proportion to the degree of fever. Large ragged and deep wounds afford the most ideal condition for rapid infection, especially if important blood vessels and nerves have been injured so as to interfere seriously with nutrition and to produce rapid necrosis. The thoroughness of early surgical intervention is a most important factor in the progress of the infection. Prophylaxis consists in the usual precautions against wound infection, together with special considerations arising from the nature of trench warfare and the ease of infection with the organism responsible for progressive emphysematous necrosis. Covering the floor of the trench with wood faggots, and whitewashing thickly and repeatedly the sides of the trench, are measures suggested, as well as the adoption of a less porous and more easily cleanable material for clothing, and rigid attention to trench hygiene. Abortive treatment presupposes the possibility of being able thoroughly to treat the wound within twelve hours after the receipt of injury, and the prompt and complete removal of all foreign bodies or splinters of bone, under *x*-ray guidance if possible. In large wounds long fenestrated rubber tubes should be placed in the depth of the wound and its diverticula, and the wound packed with gauze saturated with Dakin's fluid, over which is placed a layer of non-absorbent cotton through which the tubes pass, so that every hour or two the fluid may be injected through them in order to keep the gauze thoroughly saturated. At the end of one or two days, according to the size and character, the wound will be sterilized, and the patient can then be moved to the rear hospital on a moulded splint or plastic dressing. The curative treatment has especially to do with the second grade of the infective process, which is usually treated in the large base hospitals of the interior. While it is considered that Wright's treatment with salt solution may be satisfactory in selected cases the great majority of progressive cases appear to require more radical treatment, such as not only a thorough opening up of the wound, but also the continuous use of an active antiseptic. A few others have advised and reported favourably upon a subcutaneous introduction of oxygen under pressure into the tissues above the wound. In order to prevent or limit skin retraction after operation the following method was devised to pull constantly upon the skin during the period of after-treatment; A wide piece of Canton flannel material is glued on its hairy side to the skin about 2 in. above the wound. Sewn to this are four narrow pieces, 2 in. apart, each having a short piece of narrow webbing attached. This should not be used until three or four days have elapsed after the operation, so that nothing may interfere with the keeping the wound wide open. Narrow strips of rubber cover the raw surface, and over this are placed the wide gauze pads, secured in place by a narrow strip of gauze surrounding the dressings at the end of the stump. The extension straps are now brought over the end of the stump and buckled to corresponding webbing on a cross piece of wood attached to a cord passing over a pulley and secured to a bag weighing 5 to 7 lb. By keeping up such extension for a month, the dressings being renewed daily, the skin usually comes down over the stump sufficiently to allow the apparatus to be dispensed with. When once the septicaemic grade is reached all methods of treatment by serums, etc., are useless, and the only hope is to prevent the onset of this stage by prompt amputation in the latter part of the second grade and before the patient is too weak to stand the shock of the operation.

AN EPITOME OF CURRENT MEDICAL LITERATURE.

War Number.

MEDICINE.

74. War Psychiatry.

AT a meeting of the Royal Medical Academy of Genoa ARTURO MORSELLI, consulting neurologist to the First Army of Italy, presented a communication on war psychiatry which he called a new chapter in mental pathology. He excluded from his purview all the common forms of psychosis which the circumstances of warfare had forced from a condition of latency into active development, and those such as alcoholism, epilepsy, and dementia praecox, which had already existed when the patients were mobilized. Dealing only with mental aberrations due directly to the war, he said these mostly occurred in an acute form; they were brought on by the emotional excitement of battle, and, in his experience, had a basis of asthenia. He divided them into seven groups: (1) Acute nervous asthenia, mostly in the form of neurasthenia and psychasthenia; 2) hysteria, of which there were many varieties manifesting themselves in dumbness, stammering, tremor, paralysis, convulsions, catalepsy, or somnambulism; (3) depression, showing itself sometimes as simple sadness, at others as delirium with ideas of suicide; (4) stupor, sometimes simple, sometimes accompanied by catatonic phenomena recalling those of dementia praecox; (5) hallucinations, coming on in a transient form after emotion; (6) confusional states, having the characters of amentia; (7) in rare cases, maniacal excitement. All forms of war psychosis in the strict sense are, in Morselli's experience, curable within a short period if treated early; it is important, therefore, that the diagnosis should be made at once within the war zone. It is better that a soldier whose mind has been deranged by the conditions of military service should not be sent to a lunatic asylum unless the case proves refractory to early treatment. The author points out the difficulties presented by more or less conscious simulation. It is in dealing with such cases that the experience of the psychiatrist is most useful, as, without special knowledge, mistakes are easily made. Once the doctor has made up his mind that the soldier is shamming, the best plan is to send him back to the fighting line. The results of treatment in the psychiatric stations within the war zone are very satisfactory. In some forms of psychosis the proportion of cures within the first ten days is 60 per cent.

CHAVIGNY (*Paris méd.*, January 1st, 1916) says that soldiers on active service are peculiarly liable, under the strain of the number and variety of the duties imposed upon them, to show mental breakdown by "reactions" which expose them, if their nature is not recognized, to be punished for breaches of discipline. Temporary loss of memory may make a man forget that he is a soldier and leave the trenches, with the result that he is court-martialled; the same thing may happen in cases of deaf-mutism from shock. The reactions of real insanity are shown by desertion, abandonment of post, refusal to obey, breaking of arms and destruction of equipment, burning of buildings, mutiny, and acts of violence. These offences include almost all those which under military law are visited with increased penalties in time of war. Chavigny relates several illustrative cases in which an expert examination saved men from death, and obtained for them a recognition of unfitness for military service. Chavigny insists that simulation is relatively rare, and he strongly urges the doctor, even when a case looks most suspicious, not to allow himself to be carried away by a first impression. He should carefully observe the man, not letting him, or any one about him, know that he is under suspicion. The expert must remember that a mistaken diagnosis of simulation justly exposes him to the severest criticism. But having made up his mind that the case is one of malingering, he should act without hesitation. The author relates a curious case of what he calls super-simulation. A censor of correspondence from the front intercepted a letter from a soldier to his wife, in which he told her not to worry about him when she was informed that he was in hospital, as in order to get away from the firing line, where he ran too much risk, he was shamming deaf-mutism. He instructed her how she was to answer all questions in case of inquiry, so as to give a convincing history of hereditary and personal antecedents. The man at this time had been under Chavigny's care, and was being treated for typical deaf-mutism caused by shell shock. All the classical symptoms were present—local anaesthesias peculiar to such cases, persistent cough, etc., besides loss of speech and hearing. Examination after cure of the deaf-mute condition showed a very marked state of mental instability. But more typical than this, inquiry of the man's family doctor confirmed the absolute reality of the hereditary and personal history which, in his letter to his wife, he had described as invented to suit the requirements of his case. The wife, on close examination, confessed that her husband was the victim of his imagination, as it often happened that he could not distinguish his own inventions from what he had actually seen. He was, in fact, a mythomaniac, who doubtless in order to give himself some importance had invented a disease from which he really suffered. Ravaut, as the result of a series of puncture experiments in cases of mental disturbance caused by the war, had pointed out the frequent presence either of abundant albumin or blood in the cerebro-spinal fluid in men who for the lack of objective symptoms might have been put down as simulators. Chavigny thinks this may be a useful help in diagnosis, but only if the result is positive. He has seen it negative in cases as to the genuineness of which there could be no doubt. Furrowing of the nails, dating from the appearance of nervous or mental disturbance, may be important in cases of late or retrospective examinations.

75. Simulated Disease in Soldiers.

EDGARD BLUM and GASTON DIMIER (*Gaz. hebdom. des sciences méd.*, May 21st, 1916) discuss the etiology and treatment of simulation. The determining causes are first, the wish to avoid exposure to new dangers, and secondly, to get a pension. The predisposing causes are often an illness or a wound, or it may be the nervous overstrain after a wound. Occasional causes are found in the organization of the medical staff and in the therapeutic measures employed. Full advantage had not been taken of the services of the neurologists and medical psychologists called to active service; such specialists played an important part in discovering and checking at the beginning any exaggeration by the wounded of their condition. Again, the organization of hospitals left much to be desired. If in the important military centres there were sanitary formations having at their disposal all modern therapeutic agents and a specially skilled staff, in the smaller centres there was often only one civilian doctor and the most rudimentary therapeutic equipment. Simulators had a wholesome dread of the army doctor, but in these centres his visits were made at too long intervals. Infirmarians and lady volunteers were also responsible for much exaggeration by the wounded. Their very devotion tended to encourage morbid sentimentality in the men. Other causes of simulation were excess in medical treatment and the supply of useless prosthetic apparatus. The authors quote the case of a soldier who complained of having received a contusion in the lumbar region which made him unable to stand straight. He had been given a splendid corset worth several hundreds of francs, and professed to be unable to do without it. He was a man of herculean build, and the authors were convinced that he was shamming. They took away his apparatus in spite of his protest, and a week later he walked straight and asked for his discharge. The wearing of the corset had fixed in his mind the idea of incapacity. A number of wounded were led to exaggerate their disability by the very care bestowed upon them, such as wearing a dressing too long or immobilization in plaster-of-Paris. In addition to the interference of the circulation and the stiffness of joints thus caused, the idea of disability became crystallized in the brain of the wounded man. Electricity applied with small batteries, often by persons unskilled in their use, might be another cause of simulation by giving the wounded man the notion that the failure in treatment was due to the gravity of the hurt. The authors agree with Dejerine and Bergonié that if the functional activity

was sooner brought into play; if doctors were less liberal in ordering walking-sticks and crutches; if, in short, there was less treatment of a kind tending to fix the attention of the wounded man on his hurt, there would be less exaggeration. "Firing" they think particularly harmful, as the marks left gave a sort of stamp of authenticity to the hurt which helped simulation. Discussion in the presence of the patient of the symptoms and diagnosis, and criticism of what had been done encouraged exaggeration. The authors have often heard men on the strength of these criticisms attribute the aggravation of their state to wrong treatment. They have often known wounded men refuse to submit to examination on the ground that a doctor under whose care they had been had recommended them to avoid any kind of movement under penalty of formidable complications. Medical boards were also responsible for a good deal of simulation. Overworked, and not always taking into account the reports furnished them, they often granted too long leave without sufficient reason. That was an encouragement to the simulator, especially in view of the fact that the truly brave and deserving were rewarded only with the regulation seven days. There were, according to the authors, two classes of simulators. One invented diseases; detection was generally easy. The exaggeration of their disability and the *floriture* with which they described their suffering at once enlightened the experienced physician. Others perpetuated the affection from which they suffered, and instead of getting well in the ordinary time exploited their troubles. This kind of simulation might be conscious or unconscious. Among the unconscious were certain patients with exaggerated emotivity. Some were neurasthenics and naturally exaggerated their hurt. As Duprez says, there are persons who pass rapidly from suggestion to simulation. "The psychopathic process generally follows a course which may be summed up in the following words: Commotion, emotional suggestion, exaggeration, simulation and claim for compensation." A similar evolution is seen in workmen who suffer from accidents. These cases were the easiest to cure. Then there are conscious malingerers who set their wits against the doctor's; with them it was necessary to use coercive measures.

FORGUES (*Caducée*, No. 10, 1915; *Il Morgagni*, April 10th, 1916) gives from his own experience some illustrations of simulation by soldiers. Inflamed glands in the groin may be produced by scratching the foot with a needle steeped in faecal matter. The regular outline of the lesion distinguishes it from an excoriation due to footgear. Sores of the leg may be caused by rubbing the field blanket against the skin at points where the bones are superficial (tibia, knee, malleoli, etc.). At the first visit the lesions look trifling. The next day they are reddened and extended, and if faecal matter is applied they take on an alarming phagedaenic appearance. Purulent conjunctivitis may be produced with a little tobacco juice, a particle of lime, or the juice of some euphorbiaceous plant. The absence of the gonococcus and careful watching will reveal the trick. Mucous patches are imitated by cauterization with a lighted cigarette; the size and form of the patches, which are alike in all cases, should beget suspicion. Haematuria is simulated by the ingestion of a very concentrated concoction of carrot which gives the macroscopic appearances of bloody urine. Haemoptysis can be simulated by a small cut on the tonsils or pillars of the fauces; blood is then brought up by coughing. Tonsillitis is produced by gargles of hot alcohol or petrol or a decoction of euphorbiaceous plants; in these cases the diagnosis of simulation is almost impossible. Malaria may be simulated by means of aloes applied by punctures on the flanks, or better by an infusion of laurel water; simulation cannot be proved except by examination of the blood. The author reports in detail an epidemic of dysentery caused by one of his orderlies with enemas of a saturated solution of alum, followed by the introduction into the anus of pledgets of cotton steeped in the same solution. This is retained, and the progressive irritation thus produced caused bloody diarrhoea with tenesmus perfectly simulating dysentery. He has seen fainting fits produced by enemas of a decoction of tobacco in alcoholized water; and dog bites simulated by forks thrust in opposite directions into the hand or arm, the effect being completed by contusion by striking with a stick. A comparison of the lesions with the soldier's fork, and the fact that the wounds produced by a dog's teeth are unequal in depth, whilst those produced with a fork are all equal, will serve to reveal the fraud.

76. War Mutism.

AT a meeting of the medical society of Parma in November, 1915, L. RONCORONI reported four cases of war mutism (*Il Morgagni*, May 10th, 1916). Two of the patients had an evident predisposition to mental disease, one of them having attempted suicide some years before, while the other at the age of 16, after seeing an apparition of a woman clothed in white in his room at night, remained three days without being able to utter a word. The affection also occurs in non-combatants; one of the patients was an orderly, and another a chauffeur employed in collecting wounded. Although the condition is known as war mutism, in the author's cases there were other phenomena—sensory and motor, organic and psychic—besides the loss of speech. One man was the subject of automatic motor symptoms with rhythmical movements of the head—flexion, extension, and from side to side—and twisting of the trunk, which lasted four days consecutively. Two had some muscular hypertonia, especially in the lower limbs; in three there was definite diminution in sensitiveness to pain. In one there was exaggeration of reflexes superficial and deep, and immobility of the eyeballs, so that the man seemed to be always staring at one point. There was an arrest of all the higher psychomotor functions. In the first days the patients were motionless, and incapable of reacting to external stimuli, or manifesting a spontaneous activity except in regard to taking food and emptying the rectum and bladder. In most cases sleep was not disturbed. The power of writing was always recovered before that of speech. In three cases the more important symptoms disappeared after three to ten days, and in a fortnight or three weeks cure was complete, except in the case of the man who had previously attempted suicide. In him the psychic disturbance was prolonged for a couple of months, and he left the hospital before recovery was complete; in his case, however, the condition was not so much a psychomotor arrest caused by the war as a common paraphrenic form of mutism. In all the cases there was some loss of hearing, although examination of the ears gave negative results. This was attributed to a disturbance of perception of sound which ceased with the return to normal psychical conditions. In all the cases there was loss of memory, which lasted some days. Roncoroni holds strongly that war mutism is not hysterical in nature.

77. War and Skin Disease.

MILIAN, chief of the dermato-syphiligraphic service of the French armies (*Paris méd.*, May 6th, 1916), says that skin diseases among soldiers on active service present a number of variations from the ordinary types seen in time of peace. Before the war the most common affections in the Paris skin clinics were eczema, itch, psoriasis, and tuberculosis, lupoid or warty. To-day eczema and tuberculides are relatively rare, but itch, which was also rare, has lately shown an increase corresponding to that of syphilis; this is explained by the fact that it is generally contracted by sexual intercourse. On the other hand, phthiriasis, ecthyma, and trichophytosis are common, but present some special features. Impetigo of the face and non-parasitic sycosis, particularly of the subnasal variety, are often met with. Milian attributes the infrequency of tuberculosis to the vigilance of recruiting officers in looking for the morbid condition, and to the open-air life and good feeding of the men at the front. Alopecia areata, generally common among French soldiers, has so far been little in evidence since the beginning of the war, possibly because men suffering from the affection have not been sent to hospital. The few cases seen by Milian seemed to have no connexion with emotional shock. Phthiriasis occurs in a very acute form, the whole body being invaded; the skin is covered with small oedematous papules of the size of a pin's head. The excoriated papules with small brown crusts of ordinary pediculosis and the dark discoloration characteristic of the chronic form are exceptional. This is due to prompt treatment of the condition. Milian points out that the oedematous papules have a seat of predilection not mentioned in textbooks: that is the region just below the posterior border of the axilla where the sleeve of the vest touches it. Itch lesions, on the other hand, are seen on the front of the axilla. The phthiriasis of war is almost always complicated by ecthyma of the lower limbs caused by scratching. Sometimes the lesions are in the form of straight lines as broad as the finger and several centimetres in length; they are seen in groups of two, three, or more on the front of the thigh and the outer part of the leg. They are bright red in colour, and are absolutely identical in appearance with the wounds left after the removal of strips of skin for grafting by Thiersch's method. So closely do they resemble artificial lesions that Milian at first sight was inclined to believe that they were voluntary mutilations. But their arrangement in parallel lines, their situation within reach of the hands, their direction and breadth, convinced him

that they were infected scratches. These lesions usually get well quickly under wet antiseptic dressings. A more severe form complicating phthiriasis in worn-out and dirty men is characterized by large and deep ulcers left by the separation of black eschars, which heal very slowly. The treatment is careful cleansing of the limb, painting with tincture of iodine and pure oxygenated water, and dressing with picric acid, 1 per cent. Milian says that picric acid is an excellent remedy for pyodermitis, but unfortunately its use is forbidden in military hospitals, as by taking it internally soldiers have been able to simulate jaundice. Artificial dermatitis has been rare. Milian has seen only three cases, in all of which the lesion was a pustular eruption produced by thapsia juice. Trichophytosis has been unusually frequent; Milian attributes this to the great herds of cattle collected for the feeding of the troops. In the winter of 1914–15 the animals near Verdun were packed close together in stables and barns. This was the cause of an epidemic, in which two animals out of three were attacked and the disease was communicated to the men in charge of them. Last winter it spread among the troops, who caught it from their horses, among whom the disease was very rife.

GAUCHER and Mlle. RENEE KLEIN (Ibid.) say that the influence of emotion and shock in the production of psoriasis is well known. They have been struck by the increase of the disease since the outbreak of the war, and they have especially noted the frequency of its occurrence as a sequel of wounds. Often it developed on the scar. They do not think that this is to be explained by irritation, but rather that the wound is a place of least resistance to attack. An objection to this view is the late development of the disease on scars.

SURGERY.

78. Syphilis in War Time.

AT a meeting of the Paris Académie de Médecine on March 28th (*Paris méd.*, April 8th, and *Journ. de méd. et de chir. prat.*, May 10th, 1916) GAUCHER, chief physician to a number of hospitals of the regional camp of Paris, read a paper on syphilis in war time. His observations had convinced him that in France and in the other belligerent countries syphilis was much more prevalent than before the war. In a total number of 2,295 patients treated in his service at the Saint Louis Hospital from January 1st to July 31st, 1914—that is to say, in the seven months immediately preceding the outbreak of hostilities—there were 276 cases of recent syphilis, or in round numbers 300 in 3,000. From August 14th, 1914, to December 31st, 1915, he admitted to the same service 4,912 patients, civilians and soldiers, of whom 793 were cases of recent syphilis, or in round numbers 800 in 5,000. The prevalence of the disease had therefore increased by nearly one-half since mobilization. The proportion of cases among soldiers and civilians was about equal, and the increase in numbers about the same in both classes. Many more chancres were seen in quite young people and in elderly men, and it would seem that those unfit for military service had, in regard to the contraction of syphilis, taken the place of men on active service. According to Vaillard, general inspector of the sanitary service, the 1935, 1936, and 1937 classes were threatened with contamination from birth. Gaucher, feeling that much of the evil was due to ignorance, organized courses of popular lectures on syphilis and its prevention. His communication led to the appointment of a committee consisting of Landouzy, Gaucher, Balzer, Pierre Marie, Pinard, and Vaillard, to study the best means of dealing with the situation.

79. War Injuries.

C. A. MCWILLIAMS, of New York (*Journ. Amer. Med. Assoc.*, April 8th, 1916) reports a case that is of interest on account of the number of wounds received, the way in which they were treated, and the recovery after numerous plastic operations. The man received the first attention ten hours after the infliction of the wound and was admitted to hospital after four days. The injuries comprised: (1) Wound at the level of the eleventh rib in the midscapular line. (2) Wound in the face involving the right half of the lower mandible, where there was a defect of at least an inch in the bone which had been blown away, the whole lower part of the cheek and right half of the mouth, which involved both upper and lower lips, and the tip of the nose and the right ala. This wound was infected with maggots, and was indescribably foul. (3) Shell wounds on the buttocks which were superficial and suppurating. (4) Shell wound just below right clavicle, with partial paralysis of right arm. Pulse was present on that side. (5) Wound of right great toe. (6) Simple Pott's fracture of both bones of the right leg, apparently involving the ankle-joint, probably caused by falling. The fractured leg was put up in a Cabot splint. The mouth wound was cleaned, and a number of plastic operations performed, some of which are illustrated. The four wounds of the nose, cheek, and chest were all made by a single missile, and were in direct line. The course of the bullet was from the nose to the cheek to the lower jaw, where it had its exit; it entered again just below the clavicle, and penetrated through the axilla, where it injured the brachial plexus, finally making its exit beneath the middle of the scapula behind, or its course may have been in the reverse direction. The injury of the brachial plexus was not a complete division of any of its branches, as the movements of the arm could be carried on, though greatly weakened. The jaw was repaired with grafts from the tibia.

80. Radiography in Gunshot Wounds of the Skull.

VILVANDRÉ (*Arch. radiol. et élec.*, February, 1916) says that to trephine a skull for a depressed fracture, the clinical signs of which are obvious or even urgent, without first ascertaining the presence or absence of a missile by *x* rays, is irrational. The relief of decompression may be obtained within a few hours, but if the patient still has a bullet or piece of shrapnel in his brain the prognosis is not really improved. At the same time, while recognizing the importance of radiography previous to operation in skull cases, there are cases in which *x* rays apparently fail. Even a good radiogram may be negative when the clinical symptoms point to the presence of a depressed fracture, and the failure is still more obvious in the case of a small linear crack or fissure. Damage to the skull, furthermore, is, as a rule, more extensive than can be shown in the radiograph, probably owing to the incidence of the rays on a round body. The author has noticed, in operating theatre and wards, that skulls with long comminuted fractures—even skulls in which the depression is great—do well provided no foreign body is present. The connexion between extensive fracture and good recovery has impressed the author, and he suggests that long fractures may be more efficient in relieving pressure than localized small trephining of one inch or so in diameter. A widespread decompression of a moderate degree may perhaps be better than decompression of a greater degree in a smaller area. In the cases of which he is thinking the bone remains in place, being only lifted up through intracranial pressure. The natural juxtaposition of the bone to the dura, and of the latter to the grey matter, persists to a great extent in such cases, and tends to prevent hernia cerebri and its sequelae of brain destruction and sepsis. The author wonders whether the lifting up of a large area of bone and replacing it after the necessary cleaning of clot and removal of loose bodies is not to be preferred to the trephining and removal of bone by the ordinary method. Future callus may entail further compression, but many fractured skulls, untouched by the surgeon, do well, and the sufferers go through life without further symptoms, except some slight headache.

81. Night Blindness in Soldiers.

IN a communication to the Paris Académie de Médecine, Dr. WECKER, lecturer at the University of Liége (*Journ. de méd. et de chir. prat.*, May 10th, 1916), called attention to the occurrence of hemeralopia in soldiers, a fact which he said did not appear to have been noted in former wars. Men who see quite well in daylight lose their vision at night, so that they fall into ditches, and into craters often full of water, and require to be helped on their way by their comrades. Often these men, though very brave, dread being put on duty as sentries at advance posts, feeling themselves unequal to the responsibility thus thrown upon them. If they are drivers of vehicles they are unable to do the work at night. Of 3,977 patients in an ophthalmological service at the front, 409, or about 10 per cent., presented very distinct symptoms of hemeralopia. In all the fundus was normal. The principal causes of night blindness—nervous exhaustion, overstrain, want of sleep—are found in abundance among soldiers. A well known form of the disease is that which occurs in endemic form in penitentiaries and orphanages, and in ships, owing to insufficient or improper nourishment. During the seven weeks just before Easter, in Russia, hemeralopia is very common. But among Wecker's patients there was no question of underfeeding. The treatment which he found successful was care of the general health and rest; decided improvement followed the wearing of smoked glasses. If any myopia, presbyopia, or astigmatism were present, those conditions were dealt with by appropriate glasses.

82. Extraction of Intracranial Projectiles under Fluorescent Screen.

ROUVILLOIS (*Arch. d'électr. méd.*, No. 401, 1916) practises the extraction of intracerebral foreign bodies directly under the control of the fluorescent screen. He first takes two radiographs (a front and a profile view), and decides from this information upon a datum point as precise as possible. The patient is then taken to the operating theatre, and trephining is practised according to the ordinary technique, care being taken afterwards to dilate the entrance of the tract in the general direction indicated by the preliminary radiography. This little manœuvre frequently permits of the evacuation of clot and débris, and prepares the way for the forceps. The patient is then returned to the radiographic couch, and, a screen inspection showing that the projectile is still in the same position, extraction is practised there and then. For this purpose the author uses forceps bent at the junction of the blades at an angle of about 45 degrees, similar to that used for foreign bodies in the external ear passage. Holding the fluoroscope in the left hand, he introduces the forceps with the right, working under the control of the screen image, and knowing already the general direction of the foreign body from the previous *x*-ray examination. After extraction, he introduces immediately into the intracerebral passage a drainage tube of sufficient calibre, but penetrating not more than 1 or 2 cm. By means of this drain he injects, under pressure, with a syringe, an antiseptic liquid. He claims that this technique permits one, with a little practice, to extract even small and deeply situated intracerebral projectiles with the minimum of operative damage, and in a time varying from thirty seconds to one and a half minutes.

83. Treatment of Wounds by Hyperaemia.

E. SEHRT (*Muench. med. Woch.*, March 7th and 14th, 1916), says that the treatment of wounds of limbs by Bier's method of hyperaemia has given eminently satisfactory results. He found that, provided the treatment was begun within the first twenty-four to sixty hours of the infliction of the wound, both the local and general reaction to infection was reduced to a minimum, infection being in many cases completely aborted. Since he had begun, in May, 1915, to use this method in severe wounds of the limbs he had never seen a case of gas gangrene originating in such an injury. Severe shell wounds of the trunk he still treated with free incisions. By avoiding the use of the knife in severe wounds of the limbs, and relying mainly on treatment by hyperaemia, he had prevented the occurrence of troublesome post-operative scars. After giving details of many cases, he concludes by insisting on the importance of the treatment being instituted at the earliest possible date.

LINBERGER (Ibid., February 29th, 1916) gives details of several cases treated by continuous hyperaemia, which was found to be applicable even in the field. Indeed, after the first days, this treatment required no more time than any other treatment of severe wounds. The method was particularly useful in projectile wounds of the knee-joint, practically all of which were infected, and it was mainly due to this treatment that suppuration of this joint was seldom seen by him. Even when it did occur, it was kept in check by the hyperaemia which rendered extensive operations superfluous. The fever, which was invariably present at the commencement of the treatment, soon abated; and the pain, which was often severe, decreased under the treatment, and usually ceased after twenty-four to thirty-six hours. The ultimate results were also satisfactory.

84. Sling Atrophy.

ROCHARD and STERN (*Journ. de méd. et de chir. prat.*, May 25th, 1916) call attention to the evil effects of the too prolonged wearing of arm slings, which they say tends to transform wounded men into chronic invalids. In a typical case the whole limb is wasted; the muscles from the deltoid to the interossei are atrophied; the skin of the hand is thinned, damp, violet blue in colour, and so cold that the patient often wears a warm glove. The joints of the shoulder, elbow, wrist, and fingers are stiffened as if by rust, and passive movement causes pain and resistance. If the limb is allowed to hang free, it retains the same position as when carried in the sling; the arm is fixed to the trunk, the forearm flexed, the hand and fingers point downwards. The falling of the fingers towards the ulnar side is the characteristic sign that the sling has been worn too long; it is caused by the weight of the unsupported end of the limb, and in inveterate cases corresponds to a true inward subluxation—slow, progressive, and often irreducible—of the hand and especially of the fingers. Active movements are awkward, jerky, weak, and limited; they are often accompanied by slight quick tremor. The authors insist that *écharpés*, as they call them, are neither true simulators nor really functionally disabled; they have lost the habit of movement, and the condition is one of atrophy and ankylosis produced by too long immobilization. A wounded limb is forthwith put in a sling, and kept thus supported for an indefinite time. The man finds it relieves him while the hurt is painful; afterwards it gives him the agreeable sensation that everyone gets from holding on to the side strap in a railway carriage. Insidiously the limb wastes and stiffens, and the man becomes a confirmed invalid. The first thing to be done is to dispense with the sling, notwithstanding the protests of the patient and sympathetic friends. Then if there be no definite contra-indication, such as false joint or arthritis, passive movement and massage should be employed. The treatment should at first be carried out by the doctor, who by gentleness and persuasion will gain the confidence of the patient and encourage him to put his will power in action. Of course, in cases where there is an anatomical lesion a sling is necessary; it is the abuse of it that is condemned.

THERAPEUTICS.

85. Prophylactic Inoculation against Dysentery.

ACCORDING to G. SEIFFERT and O. NIEDIECK (*Muench. med. Woch.*, February 29th, 1916), most cases of dysentery in Germany among soldiers and prisoners are due to the relatively harmless bacteria associated with the names of Lentz and Kruse. Accordingly, prophylactic inoculation has mainly been undertaken against these bacteria, whereas inoculation against the Shiga-Kruse bacteria has hitherto seldom been required. The outbreak of a small epidemic in the camp to which the authors were attached gave them the opportunity of studying the effect of inoculation in about 2,000 cases. The reactions of the serum to this inoculation were noted in several cases, and the constant development of antibodies was interpreted as evidence of acquired immunity. The cessation of the epidemic coincided with the change in the weather from severe heat to cold and rain; and it was therefore doubtful whether this or the inoculations were responsible. The authors conclude that there is at present insufficient material on which to base a final judgement on the results of inoculation against dysentery. It is also uncertain how long the immunity lasts, but probably it is short-lived, and it may therefore be necessary under certain conditions to repeat the inoculation after a few months.

86. Fibrolysin in Recent Cutaneous Scars.

HENRI TOUSSAINT (*Bull. et mém. de la Soc. de Chir. de Paris*, August 17th, 1915) has made trial of subcutaneous injections of fibrolysin for the loosening of recent scars. A six weeks' course of injections of thiosinamine did no good in a case in which the urethra was occluded from pressure by cicatricial tissue the result of a wound inflicted four months before. Injections of fibrolysin gave encouraging results in two cases in which there was an adherent cutaneous scar prolonged by an indurated cord, in each case caused by a wound from a fragment of shell received about a month before the injections were begun. The wound was situated in one case above the knee close to the internal saphenous nerve, in the other on the latero-external aspect of the neck. Both patients complained of excessive pain, especially at night. In both Wassermann's reaction was negative; 4 c.cm. of fibrolysin were injected every other day, the needle being pushed deeply along the indurated cord. Even in the case of the patient wounded in the neck, who was a very nervous subject, the injections caused no pain, although he had been unable to bear the rubbing of a collar on the site of the wound. Suggestion was used to further the cure, and the patient was assured that pain would cease as soon as the skin was freed from its adhesions. Massage was used with the injections, and the patient was told to massage the scar himself at odd times. At the end of six weeks the scar was free from the subjacent tissues and the hyperaesthesia had disappeared. The author suggests that in cases similar to those described it is advantageous to free the cutaneous and subcutaneous tissues in order to liberate the nerve fibres which give rise to the pain; also where a quite recent cutaneous scar is threatening to imprison a tendon or a sensory or mixed nerve fibrolysin may prove of great benefit. Treatment must, however, be begun early, it being useless to try the method three or four months after the infliction of a wound which has been accompanied by more or less prolonged suppuration.

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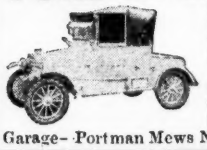
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The process of making peptonised milk is one requiring much skill and experience, and it is practically impossible to prepare it properly in the sick room. In Messrs. Savory & Moore's factory the various operations are carried out by a highly skilled and specially trained staff, with the result that their Peptonised Milk may be absolutely relied upon.

The Peptonised Milk is of the greatest value as a food in all cases of INFANTILE MALNUTRITION, also in cases of FEVER and WASTING DISEASE, whether in children or adults. It is retained even when no other kind of food can be taken, and by its nutrient qualities enables the patient to successfully combat disease. In many cases it has been the means of saving life, especially among infants.

Dilution with hot or cold water, as directed, renders it ready for immediate use.

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The water may alternatively be used as a table water, or for general dietetic purposes, or as a definite means of treatment. The precise technique of its employment at home naturally varies with each case. In some persons a course of the water is indicated once or twice each year—in spring and autumn—as much as a bottle, or even a bottle and a half, in doses of one large glass every twenty minutes, being taken every morning for twenty or twenty-five days. In others it is better to limit the course to ten or twelve days, and to administer only one or two glasses each morning before breakfast. When this is done, the treatment may be renewed more frequently—say, every two or three months, or even every month. Some, again, find it of advantage to take a large glass of the water either on rising in the morning or at bedtime, while others find it sufficient to use the water at meal-times, either by itself or mixed with wine. Finally, there are cases in which its use need only be occasional—when, for instance, there is some temporary illness or disorder.

All these points will of course be fully regulated by the patient's medical attendant if the best results are to be obtained.

Use of the water can, and should, be continued persistently, in view of its action both on the phenomena of nutrition and on diuresis, which maintains the permeability of the renal tissue and its activity.

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The natural food of young infants is human milk, but when, for physiological reasons, the mother is unable to nurse her child, a food substitute must be found which supplies the essential constituents in easily assimilable form. Ass's milk is commonly thought most nearly to approximate to human milk, but comparison of numerous analyses shows that the milk of the ass is poorer than mother's milk in most of the essential ingredients, and especially so in fat, which is vital to the child. Modified cows' milk is, therefore, authoritatively conceded to be the most satisfactory substitute in infant feeding. The proportion of proteid in cows' milk is about twice that in human milk, but it has been estimated that the proteid constituent in the former is composed of 4 parts casein to 1 part albumin, while, in the latter, albumin and casein are present in about equal degrees. Albumin is considerably more easy of digestion than casein, and, moreover, the casein of cows' milk contains an indigestible residue which is not present in human casein. Other marked differences exist, but there is a tendency for casein in cows' milk to clot in the infant's stomach, under the action of the acids present, whereas human casein yields loose and friable flocculi—and this is the most important point to which attention has to be given.

It is probable that human milk is nearer to the digested state than is cows' milk, and the treatment of the latter by the addition of a pancreatic preparation brings it into closer relation to human milk. Complete peptonisation is undesirable, inasmuch as the child's stomach must be mildly exercised in order to prepare it for increasing digestive activities as a more solid diet is introduced.

Messrs. Fairchild Bros. & Foster's PEPTOGENIC MILK POWDER contains, in addition to the ferment necessary to effect partial peptonisation, certain salts similar to those present in human milk and sufficient milk-sugar to supply the deficiency of cows' milk in this respect. When used as directed, the Peptogenic Milk Powder shows a disintegrating action on casein which modifies cows' milk so as to approximate to the composition of human milk, and the resulting product does not coagulate in curds but in fine particles.

PEPTOGENIC MILK POWDER is quite free from any impure or harmful ingredient, and may with safety be used in conjunction with cows' milk, according to the directions given for all normal infants and when human milk is not available.

Peptogenic Milk Powder is supplied in two sizes at 1/10 and 3/8 each.

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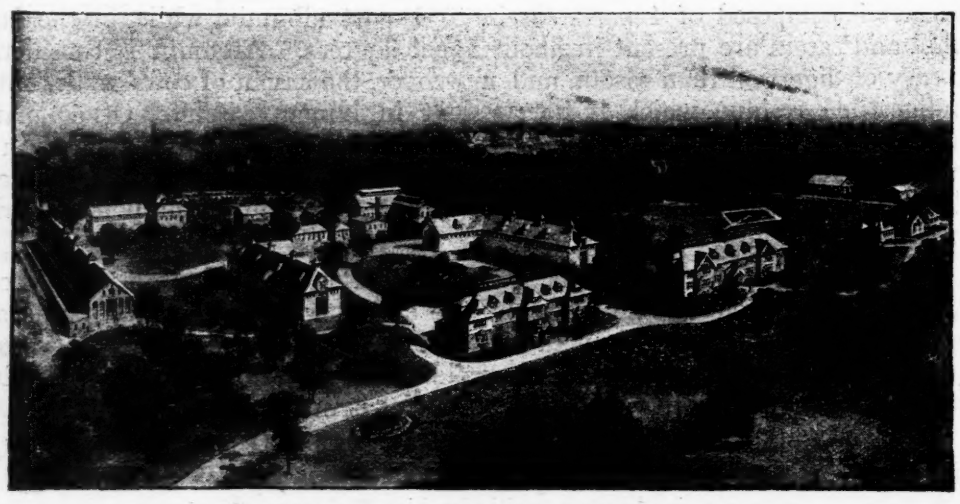

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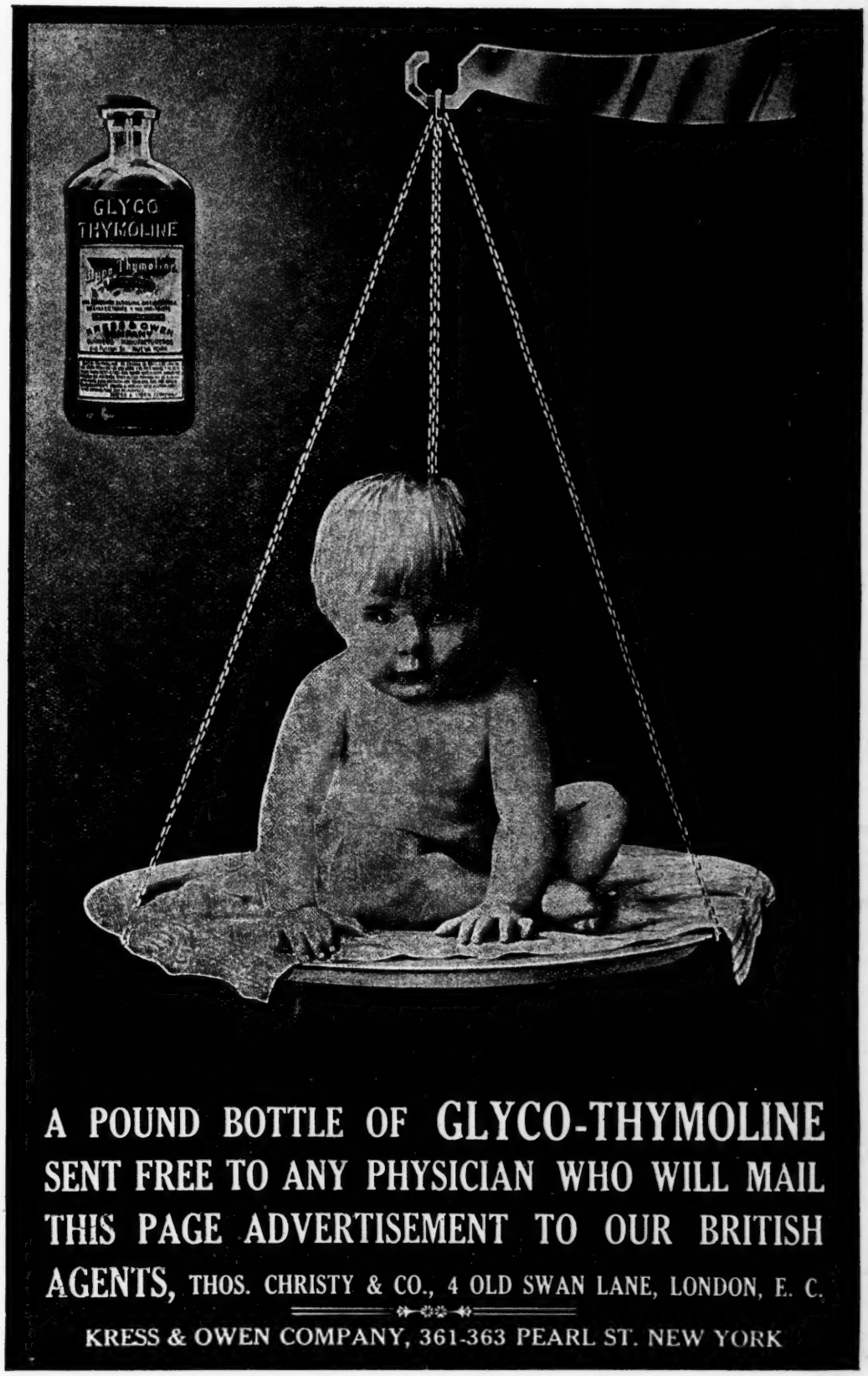

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C

EVIDENCE FROM DOCTORS.—

"Having several times tested Sanatogen, and latterly Sanaphos, I consider the latter a better preparation than Sanatogen."—Med. Off. of Health,

"Sanaphos is, in my opinion, superior to any similar product."—M.R.C.S., L.R.C.P.

"I tried Sanatogen when it first came out and never found a patient benefit the slightest by taking it. But Sanaphos has worked wonders in many cases."—M.R.C.S.Eng.

"Since the introduction of 'Sanaphos' I have always prescribed it in preference to 'Sanatogen,' and consider it superior and more readily assimilated."—L.R.C.P.I.

"No comparison. Sanaphos superior in all respects."—L.R.C.P.E., L.R.C.S.E., L.F.P.S., nr. Manchester.

"I used to prescribe Sanatogen, but never again; always in future Sanaphos."—Mayfair, W.

"Sanaphos I consider superior to Sanatogen."—L.R.C.P. & S., Sheffield.

"I believe Sanaphos as a Nerve Tonic to be superior to Sanatogen."—M.D., M.R.C.P., F.R.C.S.E.

"Sanaphos is quite as good, if not better than Sanatogen."—M.R.C.S., L.R.C.P. Lond., Fleet Surgeon R.N. Ret'd.

"Have used Sanatogen, now prefer Sanaphos."—L.D.S. (Dental Surgeon), St. Albans.

"I used Sanatogen before I tested Sanaphos, but I have found the latter much more efficacious than the German production."—Medical Practitioner, Harrow-on-the-Hill.

"I consider Sanaphos an improvement on Sanatogen."—Surgeon, Great Dover-st., S.E.

"I find the Sanaphos quite as efficacious as Sanatogen."—L.R.C.P., L.R.C.S.

"Find Sanaphos much superior."—L.R.C.P.E., L.R.C.S.Edin., S.W.

"I used to take and recommend Sanatogen. I infinitely prefer Sanaphos, and always take it daily and recommend it to my patients."—L.R.C.P., M.R.C.S., L.M., L.J.A.

"I used Sanatogen extensively for many [illegible]

"I formerly used Sanatogen constantly, but find that Sanaphos completely replaces it in every way."—M.B.A., N.W.

"I consider Sanaphos far superior to Sanatogen. My patients derive great benefit from it."—R.C.S., Leeds.

"In my opinion Sanaphos is much superior to Sanatogen. I now recommend the former to my patients."—M.B., C.M., Edin.

"I believe Sanaphos to be superior to Sanatogen."—Surgeon, Weston-super-Mare.

"I consider Sanaphos much superior to Sanatogen."—M.D., Bournemouth.

"No German-owned article should be allowed during war, and only after if British workers be employed in the manufacture, unless imported under a *Tariff*."—Surgeon, Walthamstow, N.E.

"A British-made and British-owned product which is superior in every way should be fortified and not hampered by the Government."—Dr., Dublin.

"Have previously used Sanatogen, but have discarded it in favour of Sanaphos."—M.B.

"I have used both Sanatogen and Sanaphos in my family and in my practice, and am much better pleased with Sanaphos."—L.R.C.P. Lond., M.R.C.I., Lanes.

"I consider Sanaphos superior to Sanatogen."—Physician and Surgeon, Bolton.

"Patients soon revolt at Sanatogen and its *price*."—M.D., Manchester.

"Sanaphos being much better than Sanatogen."—Dr., M.R.S., Kensington, W.

"Having prescribed Sanaphos very largely since its introduction I am convinced it is superior to Sanatogen."—L.R.C.P. and S.I., Cheshire.

"Formerly I used to mention Sanatogen to my patients, but few of them liked it even amongst Hospital patients. Now I advise Sanaphos; my patients like it and take it, as do I, frequently; whereas I only took Sanatogen once."—Dr. ——, Plymouth.

"Sanatogen was *not* a true chemical combination as stated, and this German-[illegible]

"I was at one time a great believer in Sanatogen, and have prescribed many tins of it, but now find Sanaphos is a much superior preparation both in effectiveness and taste, and now consider it to be the best milk product made."—L.R.C.P. and S.E., Medical Practitioner, Bath.

"Sanaphos is convenient to use. More palatable and in every way superior to the German product."—F.R.C.S. Eng., Plymouth.

"I have given up Sanatogen in favour of Sanaphos."—M.D. Lond., Westcliff-on-Sea.

"I used to recommend Sanatogen, but now I find Sanaphos is better in every way."—M.D., Lancing.

"I used to prescribe Sanatogen because I did not know about Sanaphos, but now I never do. There is no comparison between the two preparations. Sanaphos affords relief both physically and mentally in a very short time. It is really a wonderful preparation."—M.D., Sussex.

"I am frequently ordering Sanaphos and much prefer it to the older and cruder preparation of Sanatogen."—Physician and Surgeon, Berks.

"I used to prescribe Sanatogen. I shall never do so again, especially as I find Sanaphos gives *quicker and better* results."—L.R.C.P. Lond., etc., Wanstead.

"I formerly used Sanatogen personally and prescribed it for my patients. I now never use it, but always use and prescribe Sanaphos."—M.D., West Kensington, W.

"I have used and prescribed both, but much prefer Sanaphos."—M.R.C.S.E., L.S.A., Leicester.

"Sanaphos is very superior to any other preparation I have ever prescribed."—L.S.A.L., etc., Middx.

"Sanaphos is splendid stuff, and in my opinion distinctly superior to Sanatogen in every respect."—Prof., D.M., Liverpool.

"Although I used to order Sanatogen, I have ceased to do so for three years, considering Sanaphos a better product."—M.D., Lond., Mayfair, W.

"Do not prescribe Sanatogen now. Find Sanaphos better."—M.D., Northallerton, Yorks.

"I formerly recommended Sanatogen, but now recommend Sanaphos."—M.D., M.C.H., Co. Down, Ire.

"I have personally found Sanaphos equal to Sanatogen."—M.D., Ch.B., Upper Gloucester-pl., N.W.

"I was a user of Sanatogen; I find Sanaphos preferable. If there were no Sanaphos, I still would recommend Sanatogen or any other German product."—M.R.C.S., M.R.C.P., Devon.

"I now prescribe Sanaphos as it is better and more palatable than Sanatogen."—L.R.C.P.S.I., D.P.H. Lond., Co. Fermanagh.

"I have used both Sanaphos and Sanatogen, and I believe Sanaphos is superior to Sanatogen."—M.B., B.Ch., etc., Bewdley.

"I have abandoned Sanatogen for Sanaphos, as I consider the latter to be superior."—M.R.C.S., etc., Aylesbury.

"I have used Sanatogen for years, but shall never do so again, finding Sanaphos superior in every way."—L.R.C.P., M.R.C.S., etc., Newport, Mon.

"Far superior to Sanatogen."—L.D.S. Eng., Preston.

"A few weeks ago the representative of Sanatogen called upon me to remind me that Sanatogen was still being made. I entirely refused to reinstate the product in my prescription, and told him that I should never support the business of an alien enemy. He told me that Wulfing would never be *allowed* to trade in England again, but I think that is extremely unlikely. I hope that he will not trade here again—through lack of customers. I have ordered Sanaphos lately in a post-operation case, and my patient expressed her satisfaction."—Dr., Hampstead, N.W.

"I gave Sanaphos to a small nephew of mine, aged five years, suffering from great emaciation, anæmia, and neurasthenia after a second operation for radical cure for hernia. The child soon commenced to respond to his new food, and is now a strong, healthy, and very active boy—due, I am sure, to Sanaphos. This induced me to give Sanaphos to two children much [illegible] diphtheria. The [illegible]

"Some time ago I gave Sanaphos to a 'nerve case,' and was much gratified and surprised at the change effected after some two or three weeks' use."—M.D., Newcastle-on-Tyne.

"Members of my family were all run down after rather severe attacks of influenza. In each case there was rapid and marked improvement in health and strength and colour after a course of Sanaphos. I have also given Sanaphos to patients, pointing out that it was to be considered a food and not a medicine in the ordinary sense. These without exception are in better health. I may also state that in the past I have both taken and advised the use of Sanatogen, but I am certain the new product, Sanaphos, is a much better article, as it is much more soluble and infinitely pleasanter to take. The older preparation always left a deposit in the drinking vessel, which might be described as almost gritty and was decidedly unpleasant—to myself, at least. I have no doubt as to the efficacy and general superiority of Sanaphos."—M.D., Ladbroke-grove, W.

"My husband (Dr. ——), to whom you sent the samples of Sanaphos, wishes me to write and thank you. He is suffering with neuritis, and has derived benefit from Sanaphos."—Ben Rhydding, Yks.

"Personally I have found that Sanaphos is superior to Sanatogen, and so have my patients."—Dr., Salop.

"Having used both Sanatogen and latterly Sanaphos, it is my opinion that Sanaphos is much the superior article and should always be ordered by medical men."—M.B., C.H.M., S. Devon.

"I consider Sanaphos a better and more palatable preparation than Sanatogen."—M.D. Lond., F.R.C.P., Upper Wimpole-street, W.

"All my patients prefer Sanaphos."—L.R.C.P. and L.M., London, S.W.

"I have not used Sanatogen for a long time as I find the English preparation as good, if not better."—L.R.C.S. and P.

"British Sanaphos is superior."—M.R.C.S.

"I am glad to say my wife is feeling better already. I have been Sanaphos to

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We ask merely for a sincere opinion based on actual comparison between the German-owned article and the all-British article, solely on their merits.

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phos on account [illegible]
ority of the latter product."—M.B., C.M., Edin., Glasgow.

"Formerly used Sanatogen. Prefer British-made article."—M.A., Derby.

"Britain does not require German food."—M.B., C.M., B.S.C.

"I am of opinion that Sanaphos is superior to Sanatogen."—Consulting Surgeon to the [illegible] Hospital.

"From observation I am of opinion that Sanaphos is in every way superior to Sanatogen, and I now prescribe it with every confidence to my patients."—L.R.F. Phyn, and Surg C., Dumbartonshire.

"I am of opinion that Sanaphos is superior to Sanatogen."—M.D. (Lond.), M.R.C.S., B.Sc., near Reading.

"Careful observations have convinced me that better results accrue from the taking of Sanaphos than from the taking of Sanatogen. Therefore I have taken to prescribing Sanaphos in all cases in which I used to prescribe Sanatogen."—M.B., Lond.

"I have had quite as good results with British preparations or probably better results, and at less cost to the patients."—M.B., Glasgow, W.

"Formerly prescribed Sanatogen. Now find Sanaphos equally satisfactory."—M.D., N.B.

"Have found Sanaphos by comparison [illegible]."—M.A., M.B., Shropshire.

[illegible] article."—M.A., M.D., M.R.C.P., Upper Wimpole-street, London, W.

"The price of Sanatogen is absurd for what it is, and other preparations, as Sanaphos, are cheaper and better."—Physician and Surgeon, Richmond, Surrey.

"I have never signed an endorsement of Sanatogen."—L.R.C.S. and P.Ed., M.O., Innishannon, Co. Cork, Ireland.

"Used to employ Sanatogen, but so disappointed with results, and prefer Sanaphos on its merits."—M.B., M.R.C.S., L.R.C.P., N. Wales.

"In my practice Sanaphos has entirely superseded Sanatogen, and in my opinion gives *undeniably* better results."—M.B., Edinburgh.

"I have used and prescribed Sanaphos, and consider it superior to Sanatogen and also a more elegant preparation."—Doctor ——, Lancs.

"Have used both. Believe Sanaphos to be the better article."—L.R.C.S., Co. Durham.

"In former years I prescribed and took personally Sanatogen, but I much prefer *Sanaphos*, which is an infinitely better article."—L.R.C.P. Lond., M.R.C.S. Eng., Surgeon (retired).

"I consider Sanaphos far superior to the German Sanatogen; more digestible, nourishing, and palatable."—L.R.C.P. Lond., M.R.C.S. Eng.

phos is yielding me better results than ever Sanatogen did."—Surgeon, Manchester.

"Formerly used Sanatogen, now use Sanaphos instead in my practice."—M.R.C.S., L.R.C.P., Sussex.

"Used Sanatogen *before* the war. Sanaphos since, being British and better."—Surgeon, Bucks.

"For some time past I have ordered Sanaphos for my patients, and the results have been most satisfactory."—L.R.C.P. and L.M.C.S., Ed.

"I formerly recommended Sanatogen, but now recommend Sanaphos."—M.D., M.S., I.P., Glasgow.

"Sanaphos is superior to Sanatogen."—M.D., London.

"I formerly prescribed Sanatogen for my patients, and now regret having indirectly helped the loathsome Germans."—M.D., Brussa., L.R.C.P., L.R.C.S., Edin., L.R.F.P.S., Glas. (Retired Med. Prac.).

"I ordered Sanatogen to my patients for years, but during the past year have ordered Sanaphos instead with much better results in every way. It is unnecessary to use Sanatogen when we have a much superior article manufactured by our own people."—L.R.C.P., S.E.F.P.S., D.P.H. R.C.S.I., Co. Donegal, Ire.

"I have tried both and consider Sanaphos the better preparation."—M.A., M.B., M.R.C.S., L.S.A., Northwood, Middx.

given a most excellent preparation on to the market."—M.R.C.S., L.R.C.P., L.S.A., L.M.

"I have been taking Sanaphos personally since August last; I prefer it to any similar preparations, and largely attribute to its regular use my physical and mental vigour throughout a very severe winter's work. As I have found it of such great service in my own case I am recommending it continually in my practice. Finding it so essential personally, I want you kindly to quote your lowest price for larger quantities, as I must continue its use until the summer."—M.B., C.M., Mossley Hill, Liverpool.

"From personal experience I can affirm that Sanaphos is a *most useful* remedy and I find my patients find it free from the objectionable flavour of the Sanatogen preparation, which formerly I largely prescribed. I have dyspeptic patients who cannot take *any* kind of tea without discomfort. These find Sanaphos not only equally stimulating, but more lastingly sustaining. I always advise it taken just mixed with hot water, quite plain."—L.R.C.P., D.P.H. Lond., F.R.I.P.H., etc., Brighton.

"Sanaphos far superior to Sanatogen, and we can quite well do without Sanatogen altogether."—M.R.C.S. Eng., L.S.A. Lond., nr. Lichfield.

such an unbending food, and I need hardly say that I recommend it everywhere where I used to recommend the German product, Sanatogen. Yours is *decidedly* more *palatable*, and at the same time more assimilable, and therefore more nutritious than the former, which was *decidedly unpalatable*, this having to be disguised by flavouring with oil of lemon, which, needs matters worse, if anything, so that I had great difficulty in persuading patients to take it."—L.R.C.P. Lond., Ravenscourt Park, London, W.

"Sanaphos is distinctly superior to Sanatogen, and there is no reason to use the latter product at all."—L.R.C.P., M.R.C.S., Southsea.

"Have got Sanaphos lately and have heard opinions expressed that it is quite as good as Sanatogen."—F.R.C.S., Glos.

"Having used Sanaphos successfully for nervous complaints can speak more highly of it than for Sanatogen."

"I know the value of Sanaphos in convalescence."—D.M., M.R.C.S., L.S.A., Ramsgate.

"I formerly recommended Sanatogen. Will recommend it no more as I can now order a British product."—F.R.C.S. Eng., Glasgow.

"My wife has proved the value of Sanaphos as a Nerve Restorative."—L.R.C.P. and C., Highbury Park, N.

COMBATS SERIES, 59—PHŒNICIAN

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DIGESTIVE, TONIC AND HÆMATINIC

Invaluable for pale, languid subjects and convalescents. Especially where the digestive powers are too feeble to permit of immediate treatment with inorganic iron preparations. It is an ideal adjuvant to milk diet. Each fluid ounce contains gr. 8¾ of pure Hæmoglobin.

Supplied in bottles at **2/2** *each*

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(Trade Mark)

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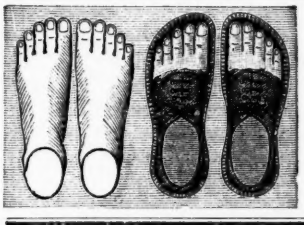

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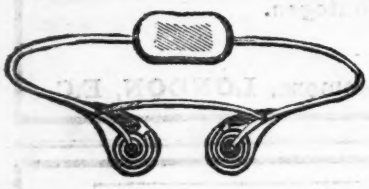

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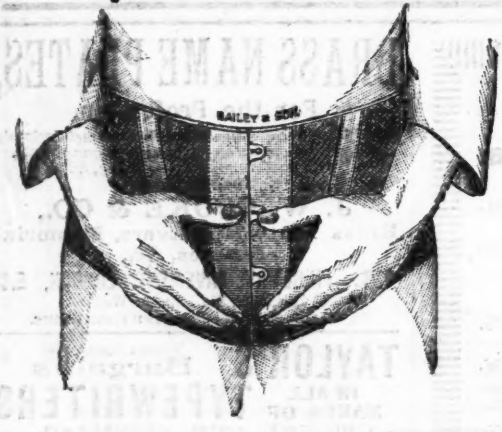

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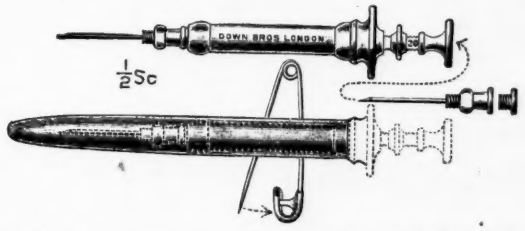

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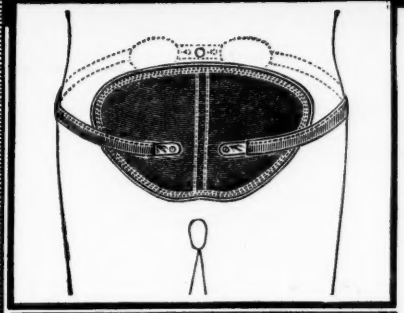

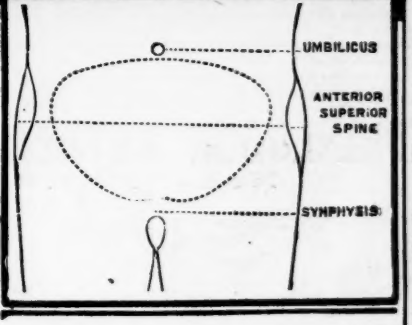

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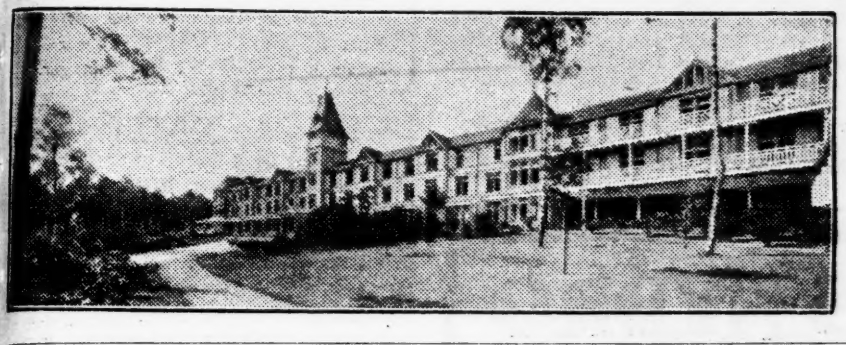

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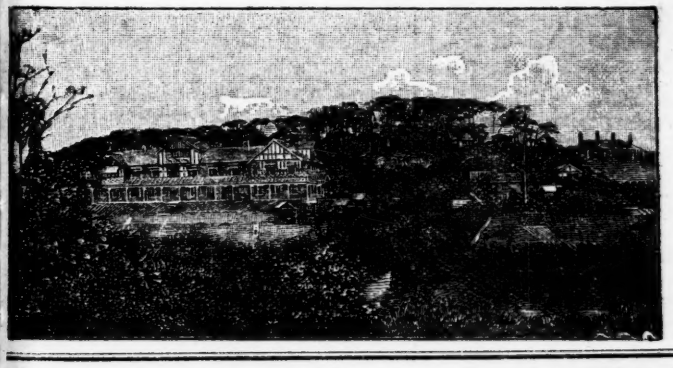

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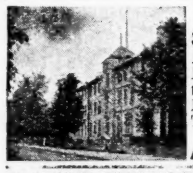

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J. BERNARD LAMB, Secretary.

19th June, 1916.

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Lincs. — Exceptional offer. Town and country PRACTICE in first-class residential and agricultural district. Receipts average £850 a year. Excellent family residence, garden, garage, &c.; rent £50. Vendor going abroad will accept £400 or near offer.—Apply, PEACOCK & HADLEY, 19, Craven Street, Strand, W.C.

Shropshire.—Death Vacancy. Mostly working-class PRACTICE. Receipts last year £1,000 approximately. Appointments £150. Fees 1s. 6d. to 4s. 6d. Panel 950. Practically unopposed. Rent £30. Ample accommodation. Premium—reasonable offer considered.—LEE & MARTIN, 93, Hall Road, Handsworth, Birmingham.

Seaside Practice, over £800 a year.—Good increasing Practice in residential Seaside Resort on north-west coast. Easily worked. No midwifery taken. No conveyance required. Small panel. Good corner house and garden. Any introduction required given. Good reason for sale. Less than one year's purchase accepted.—Apply No. 5991, c/o Mr. PERCIVAL TURNER, 4, Adam Street, Strand, W.C.

Death Vacancy.—Leeds.— Easy terms. £1,250 a year. Panel and other appointments £950. No horse required. Rent only £24. No night work taken. Easy terms of payment to prompt buyer.—Apply, No. 5997, c/o Mr. PERCIVAL TURNER, 4, Adam Street, Strand, W.C.

Death Vacancy.—Country town, Lancs. Private bookings for 1914 and 1915 average £200. Panel £132. Appointments of M.O.H. and hospital £105 per annum. Certifying Factory Surgeon. Referee to four Life Insurance Societies. Rent about £35. Premium by arrangement. Practice in late incumbent's hands over forty years. Introduction by widow and son, who will continue to reside in the town.—Address, No. 2402, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Death Vacancy in Yorkshire City. Panel over £600, appt. £150; private practice over £400. No midwifery. Expenses very light. Efficient Locum Tenens in charge. Easy terms conceded.—Apply HERBERT NEEDES, 199, Piccadilly, W.

Medical.—Good opening in busy manufacturing town near Manchester. Prominent position, main road. Rent £30.—Address, No. 2380, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Somerset.—£350 a year.— Easily worked PRACTICE in a charming locality on rail. Easily worked with cycle. Good detached house and large garden. Rent £50. Valuable sanitary and other appointments. All sport. Price £250. Vendor joining R.A.M.C.—Apply, No. 5996, c/o Mr. PERCIVAL TURNER, 4, Adam Street, Strand, W.C.

Outlying Suburb.—Cash and panel PRACTICE. Receipts at the rate of £300 a year. Panel 900. No midwifery or distant cases taken. Scope for increase. No conveyance. Rent £30. Premium £500, small amount down, rest by instalments.—Apply, PEACOCK & HADLEY, 19, Craven Street, Strand, London, W.C.

Manchester residential district.—Good class and old-established PRACTICE for sale. Owner retiring. Very nice house with garden, rent £65. Receipts over £900. Fees 3s. 6d. to 21s. Non-dispensing and non-panel. Price £1,000, part deferred or £800 cash.—MANCHESTER MEDICAL AND SCHOLASTIC ASSOCIATION, 8, King Street.

Panel and cash Practice wanted to purchase in London by L.R.C.P., M.R.C.S. (ineligible) to produce about £500 a year. —Address particulars in confidence. No. 2406, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

£900 for £400.—A general PRACTICE situated in a country district in Lincs. Panel £140 p.a. Fees 2s. 6d. to 15s. Midwiferys one to five guineas. Large old-fashioned house containing 6 bedrooms, etc. Open to every investigation. — Apply, ARNOLD & SONS, Transfer Dept., 6, Giltspur Street, London, E.C. (opposite St. Bartholomew's Hospital).

Yorks.—Splendid opportunity. —Good country PRACTICE. Receipts £1,351. Excellent house. Fees 2s. to 21s. Beautiful country. Premium £1,000. Good introduction. Small sum down.—Address, No. 2426, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

For Sale, Clément Motor BROUGHAM, 10-12 h.p., magneto ignition, live back axle, perfect running order. Price £75. —THWAITES, Clarence Lodge, Clapham Park, London.

Liveries.—Chauffeur's, Coach-MAN'S, FOOTMAN'S.—Large Stock, all colours, Top Coats, under Coats, Breeches, Macintoshes, Leggings, Hats, Caps, Gloves, Carriage and Motor Rugs, best cloths, best make on approval. Send for Price List.—ARMSTRONG, 33, Connaught Street, Marble Arch, London, W.—*Telephone:* 1999 Paddington.

During the War.—Service DRESS and COMPLETE EQUIPMENT can be supplied to medical men who have obtained Commissions in the R.A.M.C. and Navy in 24 hours by Messrs. HARRY HALL. Unequalled value, perfect fit, and accuracy in every detail is guaranteed. Innumerable unsolicited appreciations have been received from satisfied officers. Patterns, abridged Price List, and if desired a simple self measurement form, post free on application to Messrs. HARRY HALL, 207, Oxford St., W., or 149, Cheapside, E.C.
IMPORTANT.—Visitors to London can order and be fitted the same day.
'Phones: Museum 820 and City 2086. *Telegrams:* "Hallzone," London, and "Arriarle," London.

X-Ray and high-frequency APPARATUS, couch, accessories complete, for sale. Works off mains or accumulators. Low price for quick sale.—Particulars, write 'Electric," 18, Lothair Road, Finsbury Park, London, N.

Portland Place.—The oppor-tunity occurs of securing, at an exceptionally low rent, one of the SMALL HOUSES in this well-known situation, suitable for professional occupation. Full particulars may be had of the Sole Agents, SAMUEL B. CLARK & SON, 8, New Cavendish Street, Portland, Place, W.

Brighton.—House to Let, occupied by doctor (now on Service) as MEDICAL HOME 13 years. Few doors sea; close West Pier. Contains 21 rooms; rent £100. Part furniture, fixtures can be bought if required.—Write Lieutenant COMPTON, R.A.M.C., 34, Bedford Square, Brighton.

Oxford Eye Hospital.

HOUSE SURGEON wanted, man or woman, British. Board, lodging and laundry.
For further particulars apply to the Hon. Secretary.

Bolton Infirmary and DISPENSARY.
(162 Beds, mostly Surgical, including Children's Wards).

Applications for the appointment of a THIRD HOUSE SURGEON are invited from Ladies having a registered Medical and Surgical qualification.
Salary £180 per annum, with apartments, board and attendance. Applications, stating age, with copy of testimonials, should be forwarded to the undersigned, from whom further particulary may be obtained.

ALBERT E. BRISCOE,
19th June, 1916. Secretary.

Bolingbroke Hospital (Incorporated), Wandsworth Common, S.W.

RESIDENT MEDICAL OFFICER required. Appointment for one year or for duration of the war. Salary £300 per annum, with board-residence and laundry. Opportunity for experience in Operative Surgery. Applications, with not less than three testimonials, to be sent in not later than Wednesday, 12th July, to the Secretary, Medical Committee, Bolingbroke Hospital, Wandsworth Common, S.W.

Bolingbroke Hospital (Incorporated), Wandsworth Common, S.W.

HOUSE SURGEON required (Male, not of Military age, or Female). Salary £200 per annum, with board-residence and laundry Applications, with not less than three testimonials, to be sent in not later than Wednesday, 12th July, to the Secretary, Medical Committee, Bolingbroke, Hospital, Wandsworth Common, S.W.

Great Yarmouth Hospital. (72 Beds).

Patients treated during the year: In-patients, 586; Out-patients, 3,632; operations in Theatre, 247; minor operations in Out-patients Department, 314. HOUSE SURGEON (male), unmarried, non-military age, or physically unfit for War service, or female (unmarried) required 17th July, 1916. Salary £200 a year, with board, lodging, and washing. Will be required to deliver lectures to Probationer Nurses. Applications, to be accompanied with not more than four testimonials, to be sent on or before 4th July, 1916, to

RICHARD F. E. FERRIER,
16, South Quay, Hon. Secretary.
Great Yarmouth.

London Temperance Hospital, Hampstead Road, N.W.—Applications are invited for the post of ASSISTANT RESIDENT MEDICAL OFFICER. The appointment is for six months, and will be vacant on June 20th, 1916. Honorarium at the rate of £120 a year, with residence, board and laundry. Ineligible for Military Service. Applications, with testimonials, should be sent to the SECRETARY.

APPOINTMENTS.—Important Notice.

(a)—British Islands.

Medical Practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Medical Secretary of the British Medical Association, 429, Strand, London, W.C.

Town or District.	Town or District.	Town or District.
CONTRACT PRACTICE.		
ENGLAND.	**WALES** *(continued).*	**WALES** *(continued).*
COVENTRY. *(As regards Dispensary Appointments.)*	CLYDACH-ON-TAWE, YSTALYFERA, YSTRADGYNLAIS, and SWANSEA VALLEY. *(Medical Aid Associations.)*	RISCA, YNYSDDU and CWMFELINFACH. *(Colliery Appointments.)*
FOREST OF DEAN. *(Medical Aid Associations.)*	CWMTWRCH AND DISTRICT. *(Medical Aid Society.)*	**POOR LAW.** **ENGLAND.**
READING. *(Amalgamated Friendly Societies' Medical Association.)*	EASTERN VALLEYS, MONMOUTHSHIRE. *(Workmen's Medical Association.)*	BURNLEY UNION. *(District Medical Officer.)*
WORCESTER. *(Amalgamated Friendly Societies' Medical Association.)*	GARW VALLEY. *(Medical Aid Society.)*	**PUBLIC HEALTH.** **ENGLAND.**
WALES.	GORSEINON DISTRICT. *(Medical Aid Society.)*	HORNSEY. *(Part-time Assistant Medical Officer of Health to act in connection with a Scheme of Maternity and Child Welfare Work.)*
ABERCRAVE. *(Medical Aid Association.)*	LLWYNYPIA, GLAMORGAN. *(Colliery Appointments.)*	WINCHESTER. *(Lady Assistant Medical Officer of Health.)*
ABERTILLERY. *(Colliery Appointment.)*	NEATH AND DISTRICT. *(Medical Aid Society.)*	**TUBERCULOSIS APPOINTMENT.** **ENGLAND.**
BLAINA. *(Blaina and District Medical Aid Association.)*	OAKDALE, MON. *(Medical Officer for Model Village and Cottage Hospital.)*	METROPOLITAN BOROUGH OF LAMBETH. *(Assistant Tuberculosis Officer.)*
BRITON FERRY. *(Workmen's and General Institution for Medical and Surgical Treatment.)*		

(b)—Colonial.

Medical Practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Division or Branch named in the second column, or with the Medical Secretary of the British Medical Association, 429, Strand, London, W.C.

Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.	Town or District.	Hon. Sec. of Division or Branch.
NEW SOUTH WALES. *(All Friendly Society and Education Department Appointments as Medical Officers, &c.)*	Dr. R. H. TODD, (Hon. Sec., New South Wales Branch), B.M.A. Building, 30-34, Elizabeth Street, Sydney, N.S.W.	QUEENSLAND. *(Brisbane Associated Friendly Societies and Australian Natives Association.)*	Dr. E. D. AHERN (Hon. Sec., Queensland Branch), B.M.A. Buildings, Adelaide Street, Brisbane.	VICTORIA. *(All Friendly Society Lodge Appointments.)*	Dr. L. S. LATHAM (Hon. Sec., Victorian Branch), 54, Collins Street, Melbourne, Victoria.
		SOUTH AUSTRALIA. *(Friendly Societies' Dispensaries.)*	Dr. A. CAMPBELL MAGAREY (Acting Hon. Sec., South Australian Branch), North Terrace, Adelaide, South Australia.	WELLINGTON, NEW ZEALAND. *(Friendly Society Lodge Appointments.)*	Dr. H. E. GIBBS (Hon. Sec., New Zealand Branch), 123, Willis Street, Wellington, New Zealand.

Address: 429, Strand, W.C.
June 21st, 1916.

By order of the Council of the British Medical Association.
ALFRED COX, Medical Secretary.

South Devon and East CORNWALL HOSPITAL, Plymouth (189 beds).

The Committee invite applications for the appointment of a qualified HOUSE PHYSICIAN, male (ineligible for Military Service) or female, no age limit, to commence duties on 15th July. Salary £150, with board, residence and washing. Candidates should send copies of not more than three testimonials to the undersigned.

P. J. LANGDON, Secretary.

Plymouth, 9th June, 1916.

Royal Albert Edward INFIRMARY AND DISPENSARY, Wigan (168 beds, mostly Surgical).

Wanted immediately, a SENIOR HOUSE SURGEON. Ineligible for Military Service. Salary £250 per annum, with board, apartments, and washing. Candidates must be doubly qualified and registered, and be prepared to enter into an agreement not to practise in the Wigan Union for a period of three years from the date of appointment.

Applications, stating age, experience, and qualifications, with three recent testimonials, to reach the undersigned at once. Canvassing a disqualification.

L. E. MAPEI, Acting Secretary.

The Guest Hospital, Dudley. (110 Beds.)

Wanted a SENIOR RESIDENT MEDICAL OFFICER, qualified (ineligible for Military Service). A knowledge of Ophthalmic and X-ray work desirable.

Salary £150 per annum, with board, residence, and washing.

Applications, stating age and nationality, and enclosing copies of recent testimonials, to be sent to the Secretary, at the Hospital, at once.

The Royal Infirmary, Sheffield.

HOUSE PHYSICIAN.

Wanted a RESIDENT MEDICAL OFFICER (ineligible for Military Service) for the above post.

The person appointed will have charge of the Medical Beds under the supervision of the Honorary Medical Staff. Salary £120 per annum, with board and residence.

Applications, with copies of recent testimonials, to be addressed to me immediately.

By Order,
JNO. W. BARNES, Secretary.

The South London Hospital FOR WOMEN.

The Board of Management invite applications from fully qualified Medical Women for the post of PATHOLOGIST. Applications for part time work only during the War will be considered. Salary at the rate of £250 per annum. The appointment to date from September 1st.

Full particulars may be obtained from the Secretary. Canvassing members of the Board is not allowed.

Applications, with copies of testimonials, to reach the Secretary, 88 & 90, Newington Causeway, S.E., not later than first post on Saturday, July 8th, 1916.

Derbyshire Royal Infirmary, Derby.

Applications are invited for the post of HOUSE SURGEON. Candidates must be qualified and registered under the Medical Acts. Salary £200 per annum, with board, residence, etc.

The Hospital contains 237 beds, of which 144 are reserved for wounded soldiers. Further particulars on application. By order,

E. FORSTER, Secretary.

12th June, 1916.

Bristol Royal Infirmary.

Applications are invited for appointments as HOUSE SURGEONS and HOUSE PHYSICIANS.

These appointments will be made subject to the terms and conditions of the War Office Scheme for granting Commissions in the R.A.M.C., for which the successful candidates will be eligible.

Salary at the rate of £120 per annum, with board, apartments and laundry.

Candidates must possess registered Medical and Surgical qualifications.

For full particulars and conditions governing these appointments apply to the undersigned, to whom applications, accompanied by copy testimonials, should be sent.

Vacancies occur at frequent intervals.

W. E. BUDGETT,
14th June, 1916. Secretary & House Governor,

County Borough of Barnsley.

BARNSLEY AND WAKEFIELD JOINT SANATORIUM COMMITTEE.

APPOINTMENT OF RESIDENT TUBERCULOSIS OFFICER.

The Committee invite applications for the post of Assistant Tuberculosis Officer for the Borough and Resident Medical Officer at Mount Vernon Sanatorium. Salary £300 per annum, with Board and residence.

Particulars of duties and form of application may be obtained from the undersigned, to whom applications on the prescribed form are to be sent on or before the 10th day of July, 1916, endorsed "Resident Medical Officer."

W. P. DONALD,
Town Clerk and Clerk to the Joint Committee.
Town Clerk's Office, Barnsley, 19th June, 1916.

Queen's Hospital for Children,

Hackney Road, Bethnal Green, E.

HOUSE PHYSICIAN and HOUSE SURGEON required, 6 months appointments. Salary £100 p.a. with board, residence and washing. Candidates, men (enrolled or ineligible for Military Service) or women, must possess a medical and surgical qualification.

Applications, with copies of testimonials, to be sent as soon as possible to

T. GLENTON-KERR, Secretary.
14th June, 1916. Telephone: DALSTON 305.

Victoria Hospital for Sick CHILDREN, Hull.

HOUSE SURGEON required (end of July). Salary £100 per annum, with board, residence and laundry.

Candidates (women) must possess medical and surgical qualifications.

Applications, with copies of three testimonials and photograph, should be sent before the 10th July, 1916, to the Secretary of the Institution, Hull.

St. Bartholomew's Hospital,

London, E.C.

ASSISTANT ADMINISTRATOR OF ANÆSTHETICS (non-resident).

The Committee invite applications for the above office.

Candidates must be registered practitioners. Applications, with testimonials, must be left with the undersigned, from whom further particulars may be obtained, on or before Monday, the 10th July, 1916.

THOMAS HAYES,
June, 1916. Clerk to the Governors.

Birmingham and Midland Eye HOSPITAL, Church Street, Birmingham.

The Committee of Management invite applications from duly qualified practitioners for the post of RESIDENT SURGEON to this Hospital. Candidates must be ineligible for Military Service, and must possess experience in Ophthalmic work.

Salary £200 to £300 per annum (according to experience), residence and board, with £5 laundry allowance. Applications, with testimonials, stating qualifications, etc., should be sent to the undersigned, from whom further particulars can be obtained.

J. W. PEARCE,
General Superintendent and Secretary.
June 20th, 1916.

Manchester Northern HOSPITAL FOR WOMEN AND CHILDREN, Park Place, Cheetham Hill Road, Manchester.

Wanted at once, a duly qualified LADY HOUSE SURGEON. Salary, with apartments and board, £120 per annum.

Applications, with testimonials, stating age and experience, to be sent to Mr. HUBERT TEAGUE, Secretary, 38, Barton Arcade, Manchester.

Queen Charlotte's Lying-in HOSPITAL, Marylebone Road, N.W.

ASSISTANT RESIDENT MEDICAL OFFICER, male (ineligible for Military Service) or female, required. Applicants must be registered. The appointment is for four months. The selected candidate will be expected to proceed to the appointment of Senior Resident Medical Officer (also for four months) at the end of the term of office on the recommendation of the Medical Staff. The salary of the Assistant Resident Medical Officer is at the rate of £60 per annum, and of the Senior Resident Medical Officer £80 per annum, with board, residence and washing. Applications, with copies (not originals) of not more than three testimonials, will be received by the Secretary up to July 5th. Canvassing is prohibited. Duties to commence on 1st Aug., 1916. ARTHUR WATTS, Secretary.

Manchester Children's HOSPITAL.

Wanted a lady RESIDENT MEDICAL OFFICER (Locum Tenens) from 1st July to 17th July. Apply, stating essential particulars, to the Secretary, Manchester Children's Hospital, Pendlebury.

Wanted Superintendent for the MANCHESTER BABIES' HOSPITAL.

General training necessary; Special training in Infant and Social work desirable. Duties include general supervision of Hospital and training of Probationers. Salary £100 a year, resident.—Apply to Hon. Sec., Mrs. SIDNEY MCDOUGALL, Tiverton, Hale, Cheshire.

Great Northern Central HOSPITAL, Holloway, London, N.

Applications are invited for the post of HOUSE SURGEON. Male candidates must be ineligible for Military service. The appointment is for six months, with salary at the rate of £100 per annum, with board, residence and laundry.

Applications, accompanied by copies of testimonials, should be sent in as soon as possible to

GILBERT G. PANTER, Secretary.

St. Paul's Hospital for Skin AND GENITO-URINARY DISEASES, Red Lion Square, W.C.

Vacancy for qualified medical man as HONORARY CASUALTY OUT-PATIENT SURGEON.—Apply, A. W. JOHNSTON, Hon. Secretary.

City of Leeds.

HOSPITALS FOR INFECTIOUS DISEASES AND TUBERCULOSIS.

ASSISTANT MEDICAL OFFICERS.

Wanted, two Certified Assistant Medical Officers, one permanently for the General Hospital and one temporarily for the Tuberculosis Hospital.

Salary in each case at the rate of £250 per annum, with board, lodging and washing.

Applications, stating age, experience and qualifications, with copies of recent testimonials, addressed to the undersigned, and endorsed "Medical Assistant," to be delivered not later than 1st July next.

ROBERT E. FOX, Town Clerk.
Leeds, 12th June, 1916.

The Royal Infirmary, Sunderland.

Wanted Lady HOUSE SURGEON. Candidates must be fully qualified and registered. Salary £130 per annum, with board, residence and laundry. There are 240 beds for patients, and at present two Lady Residents, a third being required.

Applications, stating age, with copies of three recent testimonials, to be sent to the undersigned.

THOMAS ROBINSON, Secretary.
June 8th, 1916.

Beckett Hospital, Barnsley.

(120 Beds—50 for wounded.)

MATRON required early in September. The Committee invite applications for the post of Matron. Salary £60 a year. The applicant must be a fully trained Nurse, capable of taking charge of the housekeeping and general domestic management of the Institution. There is a separate Nurses' Home, where the Matron has her own sitting-room and bedroom in addition to an office in the Institution.

Applications, with three testimonials, should be received by the undersigned on Monday, the 10th July. Canvassing will disqualify a candidate.

R. F. PAWSEY, Honorary Secretary.
8, Regent Street, Barnsley. 21st June, 1916.

Matron required at Bailbrook HOUSE PRIVATE ASYLUM, Bath.

—Lady aged from 28 to 38, and holding the Nursing Certificate of the Medico-Psychological Association. The Salary commences at £70 per annum, with board, lodging and laundry. Applications, with copies of three recent testimonials, to reach the Medical Superintendent by 10th July.

THE NURSES' CO-OPERATION,

22, Langham Street, Portland Place, W.

FOUNDED 1891. INCORPORATED 1894.

Established to secure to Nurses the full remuneration for their work and to supply

FULLY-TRAINED HOSPITAL

MEDICAL
SURGICAL
MENTAL
MATERNITY
FEVER
CHILDREN'S
MASSAGE
} NURSES

To work under medical supervision.

The Nurses are fully insured by the Co-operation against the Employers Liability under the Workmen's Compensation Act, 1906.—Miss HOADLEY, Lady Superintendent.

Telegraphic Address: "Aprons, London." Telephone 6742 and 6743 Mayfair.

MALE NURSES
TEMPERANCE CO-OPERATION LTD.

Telephones—		Telegrams—
London:	538 PADDINGTON.	ASSUAGED, LONDON.
Birmingham:	2106 MIDLAND.	ASSUAGED, BIRMINGHAM.
Manchester:	4699 CENTRAL.	ASSUAGED, MANCHESTER.
Edinburgh:	2715 CENTRAL.	ASSUAGED, EDINBURGH.

London —10, THAYER STREET, MANCHESTER SQUARE, W.
Birmingham—75, HAGLEY ROAD.
Manchester—237, BRUNSWICK STREET (Facing Owens College).
Edinburgh —7, TORPHICHEN STREET.

All Nurses are Fully Insured against Accident.

Trained Male Nurses & Valet Attendants for Mental, Medical, Travelling & all cases.

Terms £2 2s. to £3 3s.

Please Address all Communications—W. WALSHE, *Secretary.*

THE LONDON TEMPERANCE
NURSES CO-OPERATION 18, ADAM STREET, PORTMAN SQUARE, LONDON, W.
Telephone: 2302 MAYFAIR. Telegrams "NURSLONTEM, BAKER, LONDON."
Supplies Fully Trained Hospital Nurses, also MENTAL AND MALE NURSES.
Nurses Insured against Accident. TERMS FROM £2 2s. TO £3 3s. APPLY SECRETARY.

MENTAL NURSES (MALE and FEMALE) ASSOCIATION, Ltd. 54, George Street, Manchester Sq, W.
Telephone: MAYFAIR 2287. Telegrams: "ISOLATION, LONDON."
Superior Mental Nurses (Male and Female) supplied at a moment's notice Day or Night for Nerve and Mental Cases.
NURSES FULLY INSURED AGAINST ACCIDENT. Apply SECRETARY.

London Hospital Private NURSING STAFF.—TRAINED NURSES for Adults and Children for Medical, Surgical, Maternity, or Massage Cases can be had immediately. Apply Matron, London Hospital, Whitechapel. Telephone: No. 5020 Avenue.
The nurses on the private staff return to the wards between their cases after sufficient rest, so that their work and knowledge are kept thoroughly up to date.

GENERAL NURSING ASSOCIATION 5, MANDEVILLE PLACE, Manchester Square, W.
Established 1862, at Henrietta Street, Covent Garden. Thoroughly experienced Hospital-trained NURSES supplied at a moment's notice being Residents in the Home. Also Specially trained NURSES for Mental Cases worked under the system of Co-operation. Apply to the SUPERINTENDENT.
Telephone: Mayfair 115.
Telegraphic Address: "Nutrix Wesdo, London."

Telephone: Mayfair 7070.
Telegrams: Firths Association, London.
THE LONDON ASSOCIATION OF NURSES.
123, NEW BOND STREET, W.
Hospital Trained Nurses, experienced in Private Nursing, supplied for every kind of illness. Also Mental and Male Nurses.
Apply, LADY SUPERINTENDENT.

Telephone: PADDINGTON 2437.
Telegrams: ASSISTIAMO, LONDON."
MALE NURSES' ASSOCIATION
29, YORK STREET, BAKER STREET, LONDON, W.
ESTABLISHED 14 YEARS.
Permanent Staff of Resident Male Nurses.
We supply fully trained male nurses for all cases. Thoroughly experienced men with special training for mental work. Masseurs supplied for town or country. W. J. HICKS, *Secretary.*

THE MENTAL NURSES' CO-OPERATION,
49, Norfolk Square, Hyde Park, London, W.
Telephone: 6533 Paddington. ESTAB. 1907. *Telegraphic Address:* Nursental, London.
Fully trained and experienced Nurses for MENTAL, NERVOUS, and MASSAGE CASES supplied immediately. All nurses insured under the Employers' Liability Act of 1906.
Apply to Miss JEAN HASTIE, Superintendent.

THE
NEW MENTAL NURSES CO-OPERATION,
139, Edgware Road, Marble Arch, W.
Specially trained Nurses for Mental and Nerve cases. All Nurses are insured against accident.
Apply the SUPERINTENDENT.
Telegrams: 'Psyconurse Edge London." *Telephone:* No. 6105 Paddington

LEE & MARTIN
(THE BIRMINGHAM MEDICAL AGENCY)
93, HALL ROAD, HANDSWORTH, BIRMINGHAM
TELEGRAMS: "Locum, Birmingham." TELEPHONE: 191, Northern, B'ham.
Transfers of Practices and Partnerships arranged
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ST. JOHN'S HOUSE,
Trained and experienced Medical, Surgical, Maternity, NURSES and MASSEUSES can be obtained by application, personally or by letter, to the Sister Superior, 12, Queen Square, Bloomsbury.
Telephone No. 5099 Central (P.O.).
Telegraphic Address: "*Private Nurses, London.*"

York Road (General Lying-IN HOSPITAL, Lambeth, S.E.—Established 1765. Patrons, H.M. THE QUEEN and H.M. QUEEN ALEXANDRA. Medical Students and Qualified Practitioners admitted to the Practice of this Hospital. Telephone, 794 Central. For rules, fees, etc., apply ROSE E. WHYTE, Secretary.

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MANCHESTER CLERICAL, MEDICAL AND SCHOLASTIC ASSOCIATION, LTD.
The oldest MEDICAL Agency in Manchester.
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Telegraphic Address: "STUDENT, MANCHESTER."
TRANSFERS and PARTNERSHIPS arranged, and Investigations, Valuations, &c., undertaken.
ASSISTANTS & LOCUM TENENS SUPPLIED.
PRACTICES for sale. Particulars on application.

SPECIAL NOTICE.

The **LISTS** of the following Medical Agents, viz.:—

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BLUNDELL & RIGBY,
Walter House, 418-422, Strand, W.C.
(Entrance Bedford Street.)
Telephone: 7118 GERRARD.
Cable Address: (via Eastern) "RECALLABLE, LONDON."
LOCUMS SUPPLIED.

Far East.—Locum required for about 9 months.

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